

**Vol. 5 of 5 (Appx32657-41268)**  
**No. 24-1098**

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**UNITED STATES COURT OF APPEALS  
FOR THE FEDERAL CIRCUIT**

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BRITA LP,

*Appellant,*

v.

INTERNATIONAL TRADE COMMISSION,

*Appellee,*

ZERO TECHNOLOGIES, LLC, CULLIGAN INTERNATIONAL CO., VESTERGAARD  
FRANDSEN INC., D/B/A LIFE STRAW, KAZ USA, INC., HELEN OF TROY LIMITED,

*Intervenors.*

Appeal from the United States International Trade Commission  
in Investigation No. 337-TA-1294

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**NON-CONFIDENTIAL JOINT APPENDIX**

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The non-confidential version of this appendix redacts material filed under seal pursuant to the Commission's protective order. As required by Federal Circuit Rule 25.1(e)(1)(B), the table below notes the specific pages with redacted material in the non-confidential appendix and the general nature of that material.

#### **Description of Redacted Material in Non-Confidential Appendix**

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entirety



**UNITED STATES INTERNATIONAL TRADE COMMISSION  
Washington, D.C. 20436**

**Before the Honorable MaryJoan McNamara  
Administrative Law Judge**

**In the Matter of**

**CERTAIN HIGH-PERFORMANCE  
GRAVITY-FED WATER FILTERS AND  
PRODUCTS CONTAINING THE SAME**

**Inv. No. 337-TA-1294**

**EXPERT DECLARATION OF DR. JOSEPH HARRISON  
IN SUPPORT OF RESPONDENTS' CLAIM CONSTRUCTION BRIEF**

I, Joseph Harrison, hereby declare under penalty of perjury that:

1. I have personal knowledge of the matters set forth below, and if called upon to testify I could, and would, testify competently to them.

2. I have been retained by Respondents Kaz USA, Inc. and Helen of Troy Limited (collectively, “PUR”), Respondents Zero Technologies, LLC and Culligan International Co. (collectively, “ZeroWater”), Respondent Vestegaard Frandsen Inc. d/b/a LifeStraw (“LifeStraw”), and Respondents EcoLife Technologies, Inc. and Qingdao Ecopure Filter Co., Ltd. (collectively, “EcoLife”) (collectively, “Respondents”) to provide opinions as to the meaning of certain patent claim terms at issue in this proceeding. I am being compensated at the rate of \$400 per hour, plus expenses, for my service. My compensation does not depend on the outcome of this matter.

3. In forming my opinions set forth below, I have reviewed U.S. Patent No. 8,167,141 (“the ’141 patent”). I have also reviewed the file history associated with the ’141 patent, as well as various technical papers, dictionaries, articles, and other publications relevant to the technologies at issue and/or that I identify in this declaration. In writing this declaration, I have also considered the following: my own knowledge and experience, including my work as Technical Director for 20 years with the Water Quality Association (the 2600 member international trade association representing the residential, commercial, industrial, and small community water supply treatment industry); as Chief for 17 years of the U.S. Environmental Protection Agency Safe Drinking Water Program in the Midwest Chicago Region; my work in the fields of water purification and sustainable water treatment and purification systems; my experience in teaching those subjects; authoring water quality and water treatment textbooks and my experience in working with others involved in those fields.

4. I submit this declaration in support of Respondents' Joint *Markman* Brief. I reserve the right to supplement or amend this declaration as may be necessary and appropriate, including if additional information that affects my opinions becomes available to me.

**I. BACKGROUND AND QUALIFICATIONS**

5. I am currently a Water Quality Technical Consultant. My *curriculum vitae* is provided as Exhibit 1 to this declaration. I provide highlights below.

6. I received my Bachelor of Science Degree in Civil Engineering in 1966. I received a Master of Science Degree in Water Resources Management in 1967 and in Environmental Engineering in 1972.

7. I hold a level 6 Certified Water Specialist-VI from the Water Quality Association

8. I was the Technical Advisor and Technical Director from 1990 to 2010 with the Water Quality Association. WQA is the not-for-profit trade association representing 2,600-member corporations who provide equipment and services in the residential, commercial, industrial and small community water supply treatment industry. I provided training and education resources for WQA's professional certifications. Prior to this position with WQA, I was Chief of the Safe Drinking Water Branch for Region V of the U.S. Environmental Protection Agency. I am a registered professional engineer and hold the title of Certified Water Specialist VI with the Water Quality Association's certification program. I have Master of Science Degrees in Water Resources Management and Environmental Engineering from the University of Wisconsin, Madison.

9. As the WQA Technical Director I have taught courses on a wide variety of topics including Water Quality, Water Treatment Fundamentals, and Water Treatment Technologies. I authored technical textbooks on "*Water Processing Residential, Commercial, Light-Industrial*," "*Water Treatment Fundamentals*," "*WQA Glossary of Terms*," and "*Ozone for Point-of-Use*,"

*Point-of-Entry, and Small Water System Water Treatment Applications;*” and managed testing and validation of water treatment equipment products under the NSF/ANSI standards for water treatment and water contact products in the WQA ANSI-accredited Gold Seal testing and certification program.

10. My work has led to numerous presentation and visibility in a number of schools and universities and national and international conferences and conventions.

11. I am a Registered Professional Engineer (PE) #E-12246, Lifetime Member of the American Water Works Association, and retired Commissioned Officer of the United States Public Health Service.

## **II. PERSON OF ORDINARY SKILL IN THE ART**

12. I understand there is a concept in patent law known as the “person having ordinary skill in the art” (which I will refer to in this declaration as a “POSITA”) and that, in providing my opinions regarding the meaning of claim terms, I should provide them from the viewpoint of such a person. I also understand that this concept refers to a person trained in the relevant technical field of a patent without possessing extraordinary or exceptional skill. It is my understanding that factors including the educational level of those working in the field, sophistication of the technology, types of problems encountered in the art, prior art solutions to those problems, and speed at which innovations are made may help establish the level of skill in the art.

13. Based on these factors, it is my opinion that a POSITA as of the relevant priority date would have had would have either (1) at least a bachelor’s degree in chemical or mechanical engineering, chemistry, bio-chemistry, or similar science or engineering studies combined with at least one year of post-graduate or industry work experience in filtering technologies or (2) at least five years of industry work experience in filtering technologies.

14. I understand that Complainant Brita LP has alleged priority dates of May 16, 2006, September 20, 2006, September 20, 2007, October 29, 2007, and September 9, 2008 for the claims of the '141 patent. Based on my education and work experience described above, I was a person of at least ordinary skill in the art at the time of any of the alleged priority dates.

### III. APPLICABLE LAW

15. The Patent Act provides that a patent “shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.” 35 U.S.C. § 112, ¶ 2 (2011). The Supreme Court set out the meaning of this statute and the standard to be applied when determining whether a patent claim is invalid for indefiniteness. *See Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898 (2014). The Court made several observations. “First, definiteness is to be evaluated from the perspective of someone skilled in the relevant art.” *Id.* at 908 (quoting *General Elec. Co. v. Wabash Appliance Corp.*, 304 U.S. 364, 371 (1938)). “Second, in assessing definiteness, claims are to be read in light of the patent’s specification and prosecution history.” *Id.* (quoting *United States v. Adams*, 383 U.S. 39, 38-39 (1966) and *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 741 (2002)). Additionally, definiteness is measured from the perspective of a person skilled in the art at the time the patent was filed. *Id.*

16. Although language has inherent limitations, “a patent must be precise enough to afford clear notice of what is claimed, thereby apprising the public of what is still open to them.” *Nautilus*, 572 U.S. at 909-910 (quoting *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 373 (1996)). Accordingly, “a patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Id.* at 901. It is not enough that a reader can construe a claim term and support it with the specification; “there is an

indefiniteness problem if the claim language ‘might mean several different things and no informed and confident choice is available among the contending definitions.’” *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014) (quoting *Nautilus*, 572 U.S. at 911 & n.8).

17. If there are multiple methods of measuring a claim limitation, leading to different results, and there is no guidance in the claims, specification, or prosecution history, the claim is invalid as indefinite. *Dow Chem. Co. v. Nova Chems. Corp.*, 803 F.3d 620, 634-35 (Fed. Cir. 2015) (“[T]he patent and prosecution history must disclose a single known approach or establish that, where multiple known approaches exist, a person having ordinary skill in the art would know which approach to select. . . . Particularly this is so where different approaches to measurement are involved.”).

18. Federal Circuit precedent indicates that indefiniteness is a question of law, though that question may comprise factual components including “the background science or the meaning of a term in the relevant art during the relevant time period.” *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 789 F.3d 1335, 1341-1342 (Fed. Cir. 2015). “Understandings that lie outside the patent documents about the meaning of terms to one of skill in the art or the science or state of the knowledge of one of skill in the art are factual issues.” *Id.* at 1342; *see also Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 331 (2015) (noting that sometimes “the district court will need to look beyond the patent’s intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period”). Those underlying factual determinations are reviewed for clear error. *Teva*, 574 U.S. at 332-33 (citing Fed. R. Civ. P. 52(a)(6)).

19. With respect to claim indefiniteness, I understand that a patent must particularly point out and distinctly claim the subject matter which the patentee regards as his or her invention.

In other words, the language of the claims must make it clear what subject matter the claims encompass. I understand that this requirement is intended to provide the public with notice of the boundaries of the patent rights and therefore to encourage innovation. In particular, I understand that a patent's claims may be invalid for indefiniteness if, when read in light of the specification delineating the patent, and the prosecution history, the claims fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.

#### **IV. OVERVIEW OF THE '141 PATENT**

20. The '141 patent, entitled "Gravity Flow Filter," was issued on May 1, 2012 to four inventors: Elizabeth L. Knipmeyer, Toni L. Lynch, Roger P. Reid, and Bruce D. Saaski. '141 patent at cover. The '141 patent was filed on September 9, 2008, and is a continuation-in-part of Application No. 11/858,765, filed September 20, 2007, which claims the benefit of Provisional Application No. 60/846,162, filed September 20, 2006. The '141 patent is also a continuation-in-part of Application No. 11/927,372, filed October 29, 2007, which is a continuation-in-part of Application No. 10/881,517, filed June 30, 2004, now abandoned. The '141 Patent also claims priority to Provisional Application No. 60/846,162.

21. As described in the patent, the "use of home water treatment systems to treat tap water continues to grow dramatically in the U.S. and abroad, in part because of the heightened public awareness of the health concerns associated with the consumption of untreated tap water." '141 patent at 1:22-25. "Water treatment for household use is typically directed to providing safer drinking water" and the methods and devices "can be classified into two basic types." *Id.* at 1:31-34. "One type is a pressurized system, such as a faucet mount system[.]" *Id.* at 1:34-35. "The other type is a low pressure system, such as a pour-through pitcher system[.]" *Id.* at 1:36-37. These low pressure systems are also referred to as "gravity flow systems" and "are well known in the art." *Id.* at 1:49-57. At the time of the alleged invention, prior filter systems that utilized

activated carbon along with “additives such as lead sorbent, ha[d] been commercially available for many years.” *Id.* at 1:65-2:2. The ’141 patent posits “that there is room for improvement in the filters used for gravity flow water filtration devices” and “[i]t would be useful to have gravity flow filters that exhibit both good water flow rates and high contaminant reduction.” *Id.* at 5:14-21.

22. The ’141 patent is directed to a gravity-fed water filter comprising filter media including at least activated carbon and a “lead scavenger.” *See* ’141 patent at Abstract; *see also, e.g., id.* at 34:5-26. Rather than base the ’141 patent on a unique shape, or configuration, or engineering, chemistry, and composition design innovation of the filter, the ’141 patent claims all filters with common activated carbon and a “lead scavenger” that return a “factor” below a certain threshold using the Filter Rate and Performance (“FRAP”) equation. *Id.* at Abstract, 5:34-53, 12:9-28, 34:5-26. The FRAP equation is as follows:

$$FRAP = \frac{[V * f * c_e]}{[L * 2]}$$

*See, e.g., id.* at 5:40-44.

23. Variable “V” is defined as “volume of the filter media (cm<sup>3</sup>).” *Id.* at 12:21. Variable “f” is defined as “average filtration unit time over lifetime L (min/liter).” *Id.* at 12:22. Variable “c<sub>e</sub>” is defined as “effluent lead concentration at end of lifetime L when source water having a pH of 8.5 contains 90-120 ppb (µg/liter) soluble lead and 30-60 ppb (µg/liter) colloidal lead greater than 0.1 µm in diameter.” *Id.* at 12:23-26. Variable “L” is defined as “filter usage lifetime claimed by a manufacturer or seller of the filter (gallons).” *Id.* at 12:27-28.

24. Claim 1, which recites the FRAP factor limitation, is the only independent claim. Claim 1 requires the filter to achieve a FRAP factor “of about 350 or less[.]” *Id.* at 34:9-11. Claim 2 requires the filter to achieve a FRAP factor “of less than about 200.” *Id.* at 34:27-28. The



additional limitations in the remaining dependent claims are unrelated to the claimed FRAP factor result.

**V. INDEFINITE TERMS IN THE '141 PATENT**

25. Based upon the intrinsic evidence and my knowledge of those of ordinary skill at the time of the alleged invention (for any of the four asserted priority dates), in my opinion, those of ordinary skill would view the Filter Rate & Performance (FRAP) Factor as ambiguous and confusing in controlling propriety to lead reduction filter designs. Any unique and independently innovative design other than a Brita LP “embodiment” of a gravity-fed water filter based with common activated carbon and customary lead scavengers could have the FRAP formula applied to them. They all inherently have filter media volume, filtration rate, effluent lead concentration, and filtration capacity as characteristics of being a water filter and the operation of any water filter. The formula does not govern materials of construction, mechanical design, engineering and chemistry innovations and uniqueness that go into designing a successful pour-through lead reduction drinking water filter product. It would be confusing and ambiguous how this '141 patent formula could restrict the manufacturing and marketing of another uniquely designed and competitive “embodiments” of water filter products that are separate and independent from the Brita LP “embodiments.” Competitors would not be able to understand how the terms “volume of the filter media” or “filter usage lifetime claimed by a manufacturer or seller of the filter” in the FRAP formula should govern their filter designs. No one manufacturer owns these common operating characteristics of any filter to control all possible filter design embodiments as expressed in the RFAP formula.

**A. “volume of the filter media”**

26. I understand that Brita LP has asserted that the phrase “volume of the filter media” is entitled to its plain and ordinary meaning, which is “quantity of the filter media in cubic units.” *See* [Joint Claim Construction Chart at p.3].

27. It is, however, my opinion that a POSITA would not be able to understand the meaning of the phrase “volume of the filter media” as that phrase is described in the ’141 patent with reasonable certainty. It is my understanding that if the specification and prosecution history do not inform a POSITA about the scope of the claims with reasonable certainty, the claims cannot be construed and are accordingly indefinite.

28. It is my understanding that the patent applicant has defined “volume of the filter media” in multiple ways, including:

- “The filter volume (V) is defined as the volume of filtering media or active media. This equates to the hydrated bed volume for mixed media filters and the mold volume for the carbon block filters.” ’141 patent, 25:34-38;
- “The cylindrical volume, minus the hollow space volume, defines the volume of filtering media.” *Id.* at 2:22-23; and
- By CAD programs. Saaski Tr. 125-36; Reid Dep. 80-83.

These multiple definitions fail to inform those of reasonable skill in the art how to measure all potential water filters that allegedly fall within the FRAP.

29. First, it is unclear what should be measured to calculate “V.” There are other filtering materials used in gravity-fed filters other than activated carbon or lead scavenger, such as foam distributors, mesh filter screens, membrane layers, non-woven layers, or ligands. *See, e.g.,* ’141 Patent at 26:34-37. But it is unclear to me which, if any, filtering components that lack

“activated carbon and a lead scavenger” should be considered “filtering media” and therefore measured to calculate variable “V” in the FRAP calculation.

30. Second, even if one knows what should be measured, it is unclear which method should be used to calculate “V.” For example, there are two proposed definitions in the specification for carbon block filters that may give different results (e.g., the mold volume is presumably larger than the cylindrical volume). *Compare* ’141 patent at 2:22-23 (“The cylindrical volume, minus the hollow space volume, defines the volume of filtering media.”), *with id.* at 25:34-37 (“The filter volume (V) is defined as the volume of filtering media or active media. This equates to the hydrated bed volume for mixed media filters and the mold volume for the carbon block filters.”). There are no definitions for other types of filtering media, such as mesh, pleated, or sheet-like filters or filters that have multiple elements (e.g. sheets and granular). *See, e.g.*, Saaski Tr. at 125-28, 132-36, 153-56; Reid Tr. at 80-81, 93-103, 176-79. Although the applicant apparently tested a pleated filter (*see* PUR’s 2-stage filter), it failed to disclose *how* to measure such a filter. *See, e.g.*, ’141 patent at Table 5. Even for the “hydrated bed volume” portion, the applicant fails to provide a definition in the specification. Prior art, for example, defined “bed volume” as the “total volume of the media including void spaces between the medium particles.” NSF Standard 53, p. 4. This definition is directly in contrast to the applicant’s express definition of “cylindrical volume, minus the hollow space volume” as defining “the volume of filtering media.” ’141 patent at 2:22-23. Likewise, the patent discloses alternative filtering media (’141 Patent at 26:34-37) but fails to disclose how to measure the volume of this filtering media.

**B. “f=average filtration unit time over lifetime L (min/liter)”**

31. I understand that Brita LP has asserted that the phrase “average filtration unit time over lifetime L” is entitled to its plain and ordinary meaning, which is “the average time (in

minutes) that it takes to filter one liter of water over the filter usage lifetime.” See [Joint Claim Construction Chart at p.4].

32. In my opinion, a POSITA would not understand the phrase “average filtration unit time over lifetime L” as used in the ’141 Patent with reasonable certainty because the claims, specification, and prosecution history lack guidance as to how the claimed filtration unit time is to be determined. Specifically, testing and measuring filtration time can be impacted by a number of different variables that can drastically change the “average” calculated.

33. For example, the quality of the water filtered would lead to different “average” filtration times. Namely, dirtier water with sediment or other significant particulate matter would filter more slowly than clean, distilled water. Thus, depending on the type of water used in the test of the “average” filtration unit time, one of skill in the art could arrive at different results and not have a clear understanding regarding whether the filtration product met the limitation of the ’141 Patent claims.

34. Other variables would similarly impact the flow rate, such as temperature. As the temperature of water decreases, its viscosity goes up. In other words, the water gets “thicker” and does not flow as easily as water with a higher temperature. Thus, depending on the temperature of the water used in the test for average filtration unit time, the results, again, would diverge.

35. Another important variable in testing for average filtration unit time relates to how the filter is prepared. If the filter is dry, it would contain more air bubbles that would require the water to travel additional distance through the filtration medium, and thus would lead to a longer average filtration unit time. On the other hand, if the filter was pre-wetted, many of those air bubbles would have made their way out of the filter at the time the water was filtered to run the

filtration time test. As with the other variables, the preparation of the filter would similarly change the “average” filtration unit time calculated.

36. In considering all of the different variables that could change the average filtration unit time (those specifically detailed above and others), as well as in reviewing the ’141 Patent, it is my opinion that neither the claims nor the specification provide sufficient clarity as to how to consistently determine the average filtration unit time of a filter. For this reason, in my opinion, it would be nearly impossible to ascertain the bounds of the claimed invention, let alone ascertain the scope of the invention with any reasonable certainty.

**C. “filter usage lifetime claimed by a manufacturer or seller of the filter”**

37. I understand that Brita LP has asserted that the phrase “filter usage lifetime claimed by a manufacturer or seller of the filter” means “[t]he total number of gallons of water that a manufacturer or seller has validated can be filtered before the filter is replaced.” *See* [Joint Claim Construction Chart at p.3].

38. It is my opinion that the phrase “filter usage lifetime claimed by a manufacturer or seller of the filter” would not inform a POSITA about the scope of the invention with reasonable certainty.

39. The variable “L,” according to the claims, refers to “filter usage lifetime claimed by a manufacturer or seller of the filter (gallons).” ’141 Patent at 34:25-26. The specification further explains that the “filter usage lifetime” variable is based on “claims presented by the manufacturer or seller of the filter”:

The filter usage lifetime (L) is defined as the total number of gallons that can be effectively filtered according to claims presented by the manufacturer or seller of the filter. Typically, these claims are present on the product packaging in the form of instructions to a consumer as to a quantity of water that can be filtered before the filter should be changed. The lifetime claims may also be presented in the manufacturer's or seller's advertising. Such claims typically

bear some relationship to some performance attribute of the filter. Typically, filter usage lifetime claims require a substantiation process, and in some cases, a competitor may be able to challenge such claims in a judicial or non-judicial process.

*Id.* at 26:6-18.

40. The phrase “filter usage lifetime” is indefinite because the patent fails to specify any particular method for measuring or calculating a filter’s “usage lifetime.” The ’141 patent states that a filter’s “filter usage lifetime” is determined based on the manufacturer/seller’s “claims.” ’141 patent at 26:6-18. The patent acknowledges that the manufacturer or seller may make “claims” on the product packaging, advertising, or a substantiation process. Thus, there are at least three different results for “lifetime” contemplated by the patent.

41. How the “filter usage lifetime” is determined is also not specified. The “filter usage lifetime” could be based on time (e.g., number of days or months of use), efficacy (e.g., percentage efficacy compared to unused filter), performance (e.g., filtering ability), rate (e.g., filter speed), among many others. The filter’s “filter usage lifetime” could also depend on what is being filtered—for example, a filter may have a longer or shorter “filter usage lifetime” for filtering one contaminant versus another.

42. The “filter usage lifetime” can also vary depending on the quality of the water to be filtered. For example, the ZeroWater filter comes with a device that can measure the total dissolved solids (“TDS”) in water. The expected volume of water to be adequately filtered by the ZeroWater filter changes based on the source water’s TDS, from infinity for low-TDS source water to 8 gallons or less for water with high TDS.

43. Additionally, a manufacturer or seller could change its claims, such as on its packaging or on its advertisements, ’141 patent at 26:8-13, resulting in a filter with no physical differences that sometimes falls within the scope of the claims and sometimes does not. *See, e.g.,*

Saaski Tr. at 142-49, 222-28; Reid Tr. at 94, 110-11, 152-58. Further, a manufacturer or seller that certifies its filter with a certification body, such as the Water Quality Association or NSF, may change its advertised or described filter usage lifetime based on changes to the standards set forth by the certification body, which change over time. This would result in a filter that is entirely unchanged that may fall within the scope of claims based on changing third-party standards.

44. Typically, when a manufacturer sets a single lifetime claim for a multiple-contaminant certified filter that lifetime is determined by the contaminant with the shortest lifetime—not necessarily lead.

45. The '141 patent also explicitly provides that a filter's "usage lifetime" can be challenged by a competitor, '141 patent at 26:14-18, meaning that the "filter usage lifetime" can differ depending on who measures the filter usage lifetime.

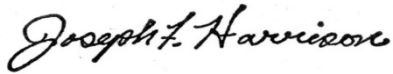
## **VI. SUMMARY**

46. As just a small example of variables in water filter designs and performances, imagine the myriad of woods, barks, husks, shells, peats, coals, pitches, and other dense carbon sources that activated carbons can be made from. Each of these will impart different adsorption characteristics to its activated carbon. And sometimes differences depending on the geographical region where the source materials originate. Imagine all the metal oxides, hydroxides, chemistries and additives that might facilitate unique sorptions for lead and other drinking water contaminants. All of these and more will affect different performances and different embodiments in every water filtration product. The potential for innumerable product enhancements cannot be inhibited by an extraneous FRAP calculation of filter product outcomes when the materials, materials performances, configurations, constructions, and mechanics of the design may be completely unique and independent.

**VII. RESERVATION OF RIGHTS**

47. I reserve the right to supplement or amend this declaration if additional facts and information that affect my opinions become available.

Dated: May 4, 2022

/s/  \_\_\_\_\_  
Joseph Harrison



PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application:	Art Unit: 1797
Inventor(s): KNIPMEYER, Elizabeth, ET AL.	Examiner: Savage, Matthew O.
Appln. No.: 11/927,372	Confirmation No.: 5919
Filing Date: October 29, 2007	
Title: Gravity Flow Carbon Block Filter	

Via Electronic Transmission  
Date March 12, 2012

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**RESPONSE TO NON-FINAL OFFICE ACTION with a  
5-month extension fee**

Dear Sir:

In response to the Non-Final Office Action mailed **October 19, 2011** in the above-captioned application, please enter the following amendments and remarks.

This response is filed with a two month extension fee.

**Amendments to the Claims** are reflected in the listing of claims which begins on Page **2** of this paper.

**Amendments to the Specification** are reflected on Page **4** of this paper.

**Remarks/Arguments** begin on Page **5** of this paper.

In re Knipmeyer et al.  
Appl. No. 11/927,372  
Docket No. 482.120A

**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application:

1. (CURRENTLY AMENDED) A gravity-fed carbon block water filter, comprising:  
about ~~20-90%~~ 30-50% activated carbon particles having a mesh size of about 80 x 325;  
about ~~20-45%~~ 35-40% ultra high molecular weight polyethylene binder material interspersed with the activated carbon particles; and  
about ~~5-40%~~ 10-30% lead scavenger, having a particle size of about 18-70 micron, and coupled to at least one of the activated carbon particles and binder material, the lead scavenger being for removing lead from water;  
wherein a lead concentration in a final liter of effluent water filtered by the carbon block is less than about 10 µg/liter after about 151 liters (40 gallons) of source water filtration, the source water having a pH of 8.5 and containing 135-165 parts per billion total lead with 30-60 parts per billion thereof being colloidal lead greater than 0.1 µm in diameter,  
wherein the water has an average flow rate of at least 0.1 liter per minute through the filter with a head pressure of between approximately 0.1 and 1.0 psi;  
wherein the binder, the carbon particles and the lead scavenger are mixed to form a substantially homogeneous blend;  
~~wherein the blend is compressed about 5-20% and at a pressure less than about 100psi.~~  
wherein the block has a wall thickness of about 0.25 in. to 0.75 in.; and  
wherein the density of the block is about 0.30 g/cm<sup>3</sup> - 0.52 g/cm<sup>3</sup>.
2. (ORIGINAL) The water filter as recited in claim 1, wherein the lead scavenger is a zirconia hydroxide.
3. (ORIGINAL) The water filter as recited in claim 1, wherein the binder material is hydrophobic.

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Docket No. 482.120A

4. (ORIGINAL) The water filter as recited in claim 1, wherein the binder material has a melt index that is less than 1.8 g/10 min as determined by ASTM D 1238 at 190°C and 15 kg load.
5. (ORIGINAL) The water filter as recited in claim 1, wherein the binder material has a melt index that is less than 1.0 g/10 min as determined by ASTM D 1238 at 190°C and 15 kg load.
6. (CANCELLED)
7. (ORIGINAL) A gravity-flow system for filtering water, comprising:
  - a container having a source water reservoir than can hold source water and a filtered water reservoir that can hold filtered water;
  - a cartridge in communication with both the source water reservoir and the filtered water reservoir, the cartridge providing a path through which water can flow from the source water reservoir to the filtered water reservoir; and
  - a carbon block filter as recited in claim 1 disposed within the cartridge.
- 8.– 19 (CANCELLED)
20. (PREVIOUSLY PRESENTED) A gravity-flow system for filtering water, comprising:
  - a container having a source water reservoir than can hold source water and a filtered water reservoir that can hold filtered water;
  - a cartridge in communication with both the source water reservoir and the filtered water reservoir, the cartridge providing a path through which water can flow from the source water reservoir to the filtered water reservoir; and
  - a carbon block filter as recited in claim ~~13~~ 1 disposed within the cartridge.
21. (CANCELLED)

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**Amendment to the Specification:**

Replace original paragraph [00158] with the following:

[00158] The cup-shaped blocks in this example each have a volume of  $105 \text{ cm}^3$  with an internal surface area of  $60.6 \text{ cm}^2$  (surface area in contact with unfiltered water available for water flow, does not include top surface). The mass of the cup-shaped blocks tested ranged from 35 g for the fiber blocks to 43.5 g for the powder blocks.

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## REMARKS/ARGUMENTS

### A. Interview with Examiner

Applicant thanks the Examiner for the courteous telephonic interview on February 29, 2012 with Applicants' representative, Stacy Combs. Clarification for the basis of the 112 rejections was discussed. The Examiner suggested limitations based on Table VII examples PA1-1, PA1-2, PA2-1, PA2-2, PA2-3, PT2-1 and PT 2-3. Applicant asks the Examiner to consider examples PA3-2 and PA3-3, either in combination with the aforementioned examples *or alone*.

### B. Status of the Claims

#### *The Pending Claims*

Claims 1-5, 7, and 20 are pending in the application. Claim 1 is amended. Claims 6, 8-19 were previously cancelled. Claim 21 is cancelled herewith.

#### *Amendments to the Claims*

Claim 1 has been amended to recite that the carbon particles are about 80x325 mesh and comprise about 30-50% of the block. The amendment is supported, for example, in [0073], [0077] and Table VII. The Examiner proposed the claim be limited to about 40-50% carbon as presented in the examples of Table VII. Such a limitation could easily be designed around and would not provide Applicant adequate patent protection for its invention. Applicant should be granted the exclusive right to the thing patented and the public should not be able to make substantial copies. Applicants' examples provide a guide on how to make the invention. As such, other embodiments can be made without difficulty and their performance characteristics predicated by looking to known scientific laws. The specification explicitly provides support for the range of about 30-50%. Applicant respectfully requests the Examiner to consider the range of about 30-50% carbon.

Claim 1 has been amended to recite about 35-40% ultra high molecular weight polyethylene binder. The amendment is supported, for example, in [0083], [0085] and

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Table VII. The Examiner proposed the claim be limited to 40% binder as presented in the examples of Table VII. Applicant respectfully requests the Examiner to consider the range of about 35-40% binder for the reasons discussed above.

Claim 1 has been amended to recite 10-30% lead scavenger having a particle size of about 18-70 micron. The amendment is supported, for example, in [0089], [0090] and Table VII. The Examiner proposed the claim be limited to a size of about 25-70 micron as presented in the examples using Alusil™ and ATS™ of Table VII. Applicant explicitly provides that the lead sorbent may also be Isolux™ 302M available from MEI. See [0090]. Accordingly, the size of Isolux is about 18-36 micron. Applicant respectfully requests the Examiner to consider the range of about 18-70 micron for the reasons discussed above.

Claim 1 has been amended to recite that the block has a wall thickness of about 0.25 in. to 0.75 in. The amendment is supported, for example, in [0093].

Claim 1 has been amended to recite that the density of the block is about 0.32g/cm<sup>3</sup> to 0.51g/cm<sup>3</sup>. The density is based on the fill weight range reported in Table VII (ie., 38-44g) and the volume of the filter in a range of about 85-125cm<sup>3</sup>. The amendment is supported by Table VII, [00123], [00158]. The Examiner proposed the volume of the filter be limited to about 105cm<sup>3</sup> as presented in [0158]. Applicant respectfully requests the Examiner to consider the range of about 85-125cm<sup>3</sup> for the reasons discussed above.

Claim one is amended to remove the limitation describing compression and pressure.

No new matter has been added by these amendments.

### **C. Rejections under 35 USC 112, first paragraph**

Claims 1-5, 7, 20 and 21 are rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement. Claim 21 has been cancelled and Claim 1 has been amended. Applicant believes the amendments have overcome the rejection. However, should an issue remain, Applicant invites the Examiner to call the undersigned.

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In view of the amendments and comments submitted herewith, Applicants respectfully request the rejection be withdrawn.

**D. Rejections under 35 USC 112, first paragraph**

Claims 1-5, 7, 20 and 21 are rejected under 35 USC 112, first paragraph, because the specification while being enabling for formulations PA1-1, PA1-2, PA2-1, PA2-2, PA2-3, PT2-1 and PT 2-3 in Table VII, does not reasonably provide enablement for all possible formulations recited in Claims 1-5. Applicant asks the Examiner to consider examples PA3-2 and PA3-3, either in combination with the aforementioned examples or alone.

Claim 21 has been cancelled and Claim 1 has been amended.

Applicant believes the amendments have overcome the rejection. However, should an issue remain, Applicant invites the Examiner to call the undersigned. In view of the amendments and comments submitted herewith, Applicants respectfully request the rejection be withdrawn.

**E. Rejections under 35 USC 112, second paragraph**

Claims 1-5, 7, 20 and 21 are rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 21 has been cancelled and Claim 1 has been amended. Applicant believes the amendments have overcome the rejection. However, should an issue remain, Applicant invites the Examiner to call the undersigned.

In view of the amendments and comments submitted herewith, Applicants respectfully request the rejection be withdrawn.

**F. Claim Rejections Under 35 U.S.C. § 103(a)**

Claims 1, 3-5, 7 and 21 are rejected under 35 USC 103(a) as obvious over Hughes US6,524,477 in view of Hughes et al US2004/0168972 and Rawson et al US2008/0023406. Applicants respectfully submit the following arguments and that the newly amended claims are patentable in view of the cited art. Claim 21 has been cancelled.

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The mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art. *KSR International Co. v. Teleflex Inc.*, 550 U.S. \_\_\_, \_\_\_, 82 USPQ2d 1385, 1396 (2007); MPEP 2143.01(III).

In order to establish a *prima facie* case of obviousness, the Examiner must demonstrate that 1) the references teach all the claimed elements; 2) there is a suggestion or motivation in the prior art to modify or combine the reference teachings; and 3) there is a reasonable expectation of success. MPEP § 2143; In re Vaack 20 USPQ2d 1438 (Fed. Cir. 1991).

Hughes describes a range of 50-80% polymer with a preferred teaching of 70% polymer to 30% carbon. The pending claims require 35-40% binder, which is well below the % described by Hughes. The pending claims also require removal of colloidal lead. The filter of Hughes is mostly comprised on binder and concerned with removal of microorganisms and doesn't describe the problem of colloidal lead. Hughes is silent regarding the density of the block. Hughes et al. nor Rawson cure the deficiencies. Hughes et al is teaching a method using vibration to make a carbon block comprised of carbon and a unique base polymeric filter matrix, such as PMX CF-1. Rawson et al. describes a granular filter, not a carbon block. Accordingly, the references do not teach all of the claimed elements. There is no suggestion or motivation to modify or combine the references and no reasonable expectation of success.

In view of the amendments and comments submitted herewith, Applicants respectfully request the rejection be withdrawn.

#### **D. Claim Rejections Under 35 U.S.C. § 103(a)**

Claims 2 is rejected under 35 USC 103(a) as being unpatentable over Hughes in view of Krause et al US3522187.

In view of the amendments and comments submitted above regarding independent claim 1, Applicant believes that it has overcome the rejection of the independent claims, thus no response is required in view of the rejected dependant claims 2.



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**CONCLUSION**

In view of the foregoing amendments and remarks, Applicants submit that the application is in condition for allowance. If, however, some issue remains which the Examiner feels may be addressed by Examiner's amendment, the Examiner is cordially invited to call the undersigned for authorization.

Please charge any additional fees, including fees for additional extensions of time, or credit overpayment to Deposit Account No. 03 2270.

Respectfully submitted,

Dated: March 12, 2012

By: /Stacy H. Combs/  
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/927,372	10/29/2007	Elizabeth Louise Knipmeyer	482.120A	5919

27019	7590	04/16/2012
THE CLOROX COMPANY		
P.O. BOX 24305		
OAKLAND, CA 94623-1305		

EXAMINER	
SAVAGE, MATTHEW O	

ART UNIT	PAPER NUMBER
1778	

NOTIFICATION DATE	DELIVERY MODE
04/16/2012	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patapps@clorox.com  
 denise.whigham@clorox.com  
 leslie.jennings@clorox.com

<b>Office Action Summary</b>	<b>Application No.</b> 11/927,372	<b>Applicant(s)</b> KNIPMEYER ET AL.	
	<b>Examiner</b> MATTHEW SAVAGE	<b>Art Unit</b> 1778	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on 12 March 2012.

2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.

3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

5) ☒ Claim(s) 1-5, 7 and 20 is/are pending in the application.

5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.

6) ☐ Claim(s) \_\_\_\_ is/are allowed.

7) ☒ Claim(s) 1-5, 7, and 20 is/are rejected.

8) ☐ Claim(s) \_\_\_\_ is/are objected to.

9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

10) ☐ The specification is objected to by the Examiner.

11) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) <input type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5) <input type="checkbox"/> Notice of Informal Patent Application 6) <input type="checkbox"/> Other: _____.
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Page 2

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5, 7, and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With respect to claim 1, the original specification fails to provide basis for an embodiment of a carbon block filter including a lead scavenger having a particle size of 18-70 micron, the block having a wall thickness of 0.25-.75 in, and the block having a density of .3-.52 g/cm<sup>3</sup>.

Claims 1-5, 7, and 20 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for formulations PA 1-1, PA 1-2, PA 2-1, PA 2-2, PA 2-3, PT 2-1, and PT 2-3 given in table IX, does not reasonably provide enablement for all of the possible formulations recited in claims 1-5. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. Applicant should note that only example 7B given in the specification includes the claimed lead removal and flow rate characteristics, the composition being limited to 40-50 wt. %

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CX-0042.0230

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80X325 activated carbon particles, 40 wt.% UHMWPE binder (e.g., GUR 2122 binder, see paragraph 161), 10-15 wt% lead scavenger having a particle size of 25-70 micron (see table IX, formulations PA 1-1, PA 1-2, PA 2-1, PA 2-2, PA 2-3, PT 2-1, and PT 2-3), the example including a density and thickness as implied by the volume, surface area, and weight of the carbon blocks (see paragraph 158 and table VII). Applicant should note that filter samples PA3-2 and PA3-3 given in example 7 will not function as recited in instant claim 1 (see Tables VII and VIII).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-5, 7, and 20 are rejected under 35 U.S.C. 103(a) as obvious over Hughes et al (US 2004/0168972) in view of Hughes (US 6,524,477) and Rawson et al (US 2008/0023406).

With respect to claim 1, Hughes et al disclose a gravity fed carbon block water filter (see paragraphs 56-58) including 65% activated carbon particles having a size of about 80X325 mesh (see paragraph 56), 35% of ultra high molecular weight polyethylene interspersed with the activated carbon particles (see paragraphs 26 and 56), the binder and carbon particles being mixed to form a substantially homogeneous blend (see paragraph 40), the carbon block having the recited flow rate characteristics (see paragraph 58). Hughes et al fail to specify a lead scavenger. Hughes discloses an

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CX-0042.0231

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analogous gravity flow filter block and teaches that 20 wt.% lead scavenger can be included in place of activated carbon particles, the lead scavenger having a particle size of about 18-70 micron since it is the same lead scavenger as disclosed in paragraph 160 of the instant specification (e.g., Englehard ATS). Hughes teaches that the addition of the lead scavenger enables the removal of lead. It would have been obvious to have modified the filter of Hughes et al so as to have included 20 wt.% of a lead scavenger as suggested by Hughes in order to enable the removal of lead. Hughes et al and Hughes fail to specify removing soluble and insoluble colloidal lead at a pH of 8.5 as claimed. Rawson et al disclose a filter that includes a lead sorbent for removing soluble lead and a lead sorbent for removing insoluble colloidal lead for treating water having a pH of 8.5 and teaches that such a combination enables the removal of both soluble and insoluble forms of lead from drinking water. It would have been obvious to have modified the combination of Hughes and Hughes et al so as to have included the required amounts of a sorbent for removing soluble lead and a sorbent for removing insoluble lead in order to enable the removal of both soluble and insoluble lead from water at a pH of 8.5 as recited in claim 1. Hughes et al fail to specify the recited wall thickness. Hughes et al and Hughes teach that the wall thickness can be adjusted to provide the desired flow rate at a particular head pressure (see paragraph 56 of Hughes et al and the third full paragraph of col. 11 of Hughes). In addition, Hughes teaches a wall thickness of .25 inch (see line 43 of col. 11). It would have been obvious to have modified the combination of Hughes et al, Hughes, and Rawson so as to have included a wall thickness of .25-.75 inch in order to provide the required flow rate at a particular

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CX-0042.0232

Appx40231

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head pressure. Hughes et al, Hughes, and Rawson fail to specify a density of the carbon block filter, however, the combination suggested by Hughes et al, Hughes, and Rawson obviously includes a density of about  $.3-.52 \text{ g/cm}^3$  since it includes the same composition as recited in the instant claim. In addition, one skilled in the art would expect the combination suggested by Hughes, Hughes et al, and Rawson to function with a reasonable expectation of success since the references together disclose all of the claimed elements used in the same way to achieve the same result.

Concerning claim 3, Hughes et al disclose a binder that is hydrophobic (e.g., UHMWPE, see paragraph 26).

Regarding claims 4 and 5, Hughes et al disclose a binder having the recited melt indexes (e.g., UHMWPE, see paragraph 26).

Regarding claim 7, Hughes discloses a container 100 (see FIG. 1) having a source water reservoir W and a filtered water reservoir W', a cartridge 10 (see FIG. 5) in communication with both the source and filter water reservoirs.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes et al in view of Hughes and Rawson et al as applied to claim 1 above, in view of Krause et al (US 3,522,187).

Hughes et al, Hughes, and Rawson fail to specify zirconia hydroxide. For examination purposes, it has been assumed that hydrous zirconium oxide (HZO) is the same as zirconia hydroxide. Krause et al disclose that HZO can be used as a cation exchanger in low acidity or basic solutions (see Table 2 in column 7). Krause et al

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suggest that such a material can rapidly and selectively recover ions from aqueous solutions (see the second full paragraph of col. 2). It would have been obvious to have modified the filter of Hughes so as to have included HZO as specified by Krause et al in order to provide a cation exchanger capable of rapidly and selectively removing positively charged ions, including lead, from water.

Applicant's arguments filed 3-12-12 have been fully considered but they are not persuasive.

Applicant argues that the limitation of the carbon particles having a size of about 80X325 mesh and a weight percentage of 30-50 wt.% of the block has basis in table VII, however, the table only provides basis for a weight percentage of 40-50 wt. % carbon particles having a size of 80X325 mesh.

Applicant argues that the recited weight percentage of 35-40 ultra high molecular weight polyethylene has basis in paragraphs 83 and 85 and table VII, however, paragraphs 83 and 85 do not specify the flow rate recited in instant claim 1 and table VII only provides basis for a weight percentage of 40 wt.% binder.

Applicant argues that the recited weight percentage of 10-30% of lead scavenger added to claim 1 has basis in paragraphs 89, 90, and table VII, however, paragraphs 89 and 90 do not specify the flow rate recited in claim 1 and table VII only provides basis for 10-15 wt.% lead scavenger in the case of the examples meeting the flow rate and lead removal criteria recited in claim 1. Applicant argues that the particle size range for the lead scavenger should be expanded to include the range of 18-36 microns to

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CX-0042.0234



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include the Isolux lead scavenger, however, it is held that the particle size range should be limited to 25-70 micron as specified paragraph 160 since the argued 18-36 micron range of the Isolux lead scavenger has no basis in the original specification.

Accordingly, the 18-70 micron range is considered new matter.

Applicant argues that the wall thickness of .25-.75 inch of the filter block has basis in paragraph 93, however, paragraph 93 is limited to the species shown in FIGS. 2-3 and does not apply to the species shown in FIGS. 15A-15D corresponding to the result recited in claim 1. Accordingly, the range of .25-.75 is considered new matter. Applicant should note that no definite wall thickness range is disclosed for the claimed species shown in FIGS. 15A-15D.

Applicant argues that the density range recited in claim 1 is based on the fill weight range of 38-44 g reported in table VII, however, the weight of the 80X325 activated carbon particles given in table VII is limited to 44g. Accordingly, the recited density range is considered new matter.

Applicant argues that the filter volume range is 85-125 cm<sup>3</sup>, however, the volume is limited to 105 cm<sup>3</sup> value given paragraph 158 in the case of example 7B which is being currently claimed.

Applicant arguments directed to the obviousness rejection based on Hughes in view of Hughes et al and Rawson are moot in view of the new grounds of rejection listed above.

**BRITALP-0005460**

CX-0042.0235

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Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew O. Savage whose telephone number is (571) 272-1146. The examiner can normally be reached on Monday-Friday, 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

BRITALP-0005461

CX-0042.0236

**Appx40235**

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew O Savage/  
Primary Examiner  
Art Unit 1797

mos

**BRITALP-0005462**  
CX-0042.0237

**Appx40236**



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/927,372	10/29/2007	Elizabeth Louise Knipmeyer	482.120A	5919

27019	7590	10/25/2012
THE CLOROX COMPANY		
P.O. BOX 24305		
OAKLAND, CA 94623-1305		

EXAMINER	
SAVAGE, MATTHEW O	

ART UNIT	PAPER NUMBER
1778	

NOTIFICATION DATE	DELIVERY MODE
10/25/2012	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patapps@clorox.com  
 denise.whigham@clorox.com  
 leslie.jennings@clorox.com

<b>Notice of Abandonment</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	11/927,372	KNIPMEYER ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	MATTHEW SAVAGE	1778

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

This application is abandoned in view of:

- ☒ Applicant's failure to timely file a proper reply to the Office letter mailed on 16 April 2012.
  - ☐ A reply was received on \_\_\_\_\_ (with a Certificate of Mailing or Transmission dated \_\_\_\_\_), which is after the expiration of the period for reply (including a total extension of time of \_\_\_\_\_ month(s)) which expired on \_\_\_\_\_.
  - ☐ A proposed reply was received on \_\_\_\_\_, but it does not constitute a proper reply under 37 CFR 1.113 (a) to the final rejection. (A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114).
  - ☐ A reply was received on \_\_\_\_\_ but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 7 below).
  - ☒ No reply has been received.
- ☐ Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
  - ☐ The issue fee and publication fee, if applicable, was received on \_\_\_\_\_ (with a Certificate of Mailing or Transmission dated \_\_\_\_\_), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
  - ☐ The submitted fee of \$\_\_\_\_\_ is insufficient. A balance of \$\_\_\_\_\_ is due.  
The issue fee required by 37 CFR 1.18 is \$\_\_\_\_\_. The publication fee, if required by 37 CFR 1.18(d), is \$\_\_\_\_\_.
  - ☐ The issue fee and publication fee, if applicable, has not been received.
- ☐ Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
  - ☐ Proposed corrected drawings were received on \_\_\_\_\_ (with a Certificate of Mailing or Transmission dated \_\_\_\_\_), which is after the expiration of the period for reply.
  - ☐ No corrected drawings have been received.
- ☐ The letter of express abandonment which is signed by the attorney or agent of record, the assignee of the entire interest, or all of the applicants.
- ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34(a)) upon the filing of a continuing application.
- ☐ The decision by the Board of Patent Appeals and Interference rendered on \_\_\_\_\_ and because the period for seeking court review of the decision has expired and there are no allowed claims.
- ☐ The reason(s) below:

	/Matthew O Savage/ Primary Examiner Art Unit: 1778
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Petitions to revive under 37 CFR 1.137(a) or (b), or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.

**Claims**

What is claimed is:

1. A gravity-fed carbon block water filter, comprising:  
activated carbon particles;  
a binder material interspersed with the activated carbon particles; and  
a lead scavenger coupled to at least one of the activated carbon particles and binder material, the lead scavenger being for removing lead from water,  
wherein a lead concentration in a final liter of effluent water filtered by the filter is less than about 10 µg/liter after about 151 liters (40 gallons) of source water filtration, the source water having a pH of 8.5 and containing 135-165 parts per billion total lead with 30-60 parts per billion thereof being colloidal lead greater than 0.1 µm in diameter,  
wherein the water has an average flow rate of at least 0.1 liter per minute through the filter with a head pressure of between approximately 0.1 and 1.0 psi.
2. The water filter as recited in claim 1, wherein the lead scavenger is a zirconia hydroxide.
3. The water filter as recited in claim 1, wherein the binder material is hydrophobic.
4. The water filter as recited in claim 1, wherein the binder material has a melt index that is less than 1.8 g/10 min as determined by ASTM D 1238 at 190°C and 15 kg load.
5. The water filter as recited in claim 1, wherein the binder material has a melt index that is less than 1.0 g/10 min as determined by ASTM D 1238 at 190°C and 15 kg load.



## UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/927,372	10/29/2007	Elizabeth Louise Knipmeyer	482.120A	5919

27019	7590	08/16/2010
THE CLOROX COMPANY		
P.O. BOX 24305		
OAKLAND, CA 94623-1305		

EXAMINER	
SAVAGE, MATTHEW O	

ART UNIT	PAPER NUMBER
1797	

NOTIFICATION DATE	DELIVERY MODE
08/16/2010	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patapps@clorox.com  
 toni.sampson@clorox.com  
 denise.whigham@clorox.com

<b>Office Action Summary</b>	<b>Application No.</b> 11/927,372	<b>Applicant(s)</b> KNIPMEYER ET AL.	
	<b>Examiner</b> Matthew O. Savage	<b>Art Unit</b> 1797	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☐ Responsive to communication(s) filed on \_\_\_\_.

2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.

5) ☐ Claim(s) \_\_\_\_ is/are allowed.

6) ☒ Claim(s) 1-20 is/are rejected.

7) ☐ Claim(s) \_\_\_\_ is/are objected to.

8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All    b) ☐ Some \* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date ____	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ 5) <input type="checkbox"/> Notice of Informal Patent Application 6) <input type="checkbox"/> Other: ____
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Page 2

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-10, 12-15, and 18-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hughes (US 6,524,477).

With respect to claim 1, Hughes discloses a gravity fed carbon block water filter 60 (see FIG. 5) including activated carbon particles 70 (see the paragraph spanning columns 6-7), a binder material interspersed with the activated carbon particles (see the last full paragraph of column 6), and a lead scavenger coupled to the activated carbon particles and binder material for removing lead from water (see the first full paragraph of column 8), the filter being capable of removing lead as functionally described in the claim since it includes lead removal media, the filter being capable of providing the recited flow rate (see the third full paragraph of column 11). Alternatively, modification of the lead removal media would have been obvious in order to optimize the filter for a

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particular application. In addition, modifying physical dimensions of the filter to achieve the recited flow rate would have been obvious since Hughes discloses that such dimensions can be adjusted for a particular application (see lines 39-59 of column 11).

Concerning claim 3, Hughes discloses a binder that is hydrophobic (e.g., UHMWPE see the second full paragraph of column 6).

Regarding claims 4 and 5, Hughes discloses a binder having the recited melt indexes (e.g., UHMWPE see the second full paragraph of column 6).

As to claim 6, Hughes discloses the structure as being compressed to no more than 10% since no compression step is mentioned (see the third full paragraph of column 8)

Regarding claim 7, Hughes discloses a container 100 (see FIG. 1) having a source water reservoir W and a filtered water reservoir W', a cartridge 10 (see FIG. 5) in communication with both the source and filter water reservoirs.

With respect to claim 8, Hughes discloses a gravity fed carbon block water filter 60 (see FIG. 5) including activated carbon particles 70 (see the paragraph spanning columns 6-7), a binder material interspersed with the activated carbon particles having the recited melt index (e.g., UHMWPE, see the last full paragraph of column 6), and a lead scavenger coupled to the activated carbon particles and binder material for removing lead from water (see the first full paragraph of column 8), the structure being compressed to less than 10% since no compression step is mentioned (see the third full paragraph of column 8), the filter being capable of removing lead as functionally described in the claim since it includes lead removal media, the filter being capable of

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providing the recited flow rate (see the third full paragraph of column 11). Alternatively, modification of the lead removal media would have been obvious in order to optimize the filter for a particular application. In addition, modifying physical dimensions of the filter to achieve the recited flow rate would have been obvious since Hughes discloses that such dimensions can be adjusted for a particular application (see lines 39-59 of column 11).

Concerning claim 9, Hughes discloses a binder having the recited melt index (e.g., UHMWPE see the second full paragraph of column 6).

Regarding claim 10, Hughes discloses 5-40 wt% lead scavenger (see the first full paragraph of column 8).

Concerning claim 12, Hughes discloses a binder that is hydrophobic (e.g., UHMWPE see the second full paragraph of column 6).

With respect to claim 13, Hughes discloses a gravity fed carbon block water filter 60 (see FIG. 5) including 20-90 wt% activated carbon particles 70 (see the paragraph spanning columns 6-7 as well as the first full paragraph of column 7), about 5-50 wt% binder material interspersed with the activated carbon particles and coupled thereto such that a cavity 63 is formed (see the first full paragraph of column 7), the ratio of surface area of the filter to the volume of filter material being greater than  $.5 \text{ cm}^{-1}$ , the filter being capable of providing the recited flow rate (see the third full paragraph of column 11). Alternatively, modifying physical dimensions of the filter to achieve the recited flow rate would have been obvious since Hughes discloses that such dimensions can be adjusted for a particular application (see lines 39-59 of column 11).

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CX-0917.0112

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As to claims 14 and 15, Hughes discloses the ratio as being less than 5 or 3. Alternatively, altering the physical dimensions of the filter would have been obvious in order to optimize the filter for a specific application.

Concerning claim 18, Hughes discloses a filter being capable of removing lead as functionally described in the claim since it includes lead removal media. Alternatively, modification of the lead removal media would have been obvious in order to optimize the filter for a particular application

Concerning claim 19, Hughes discloses a binder that is hydrophobic (e.g., UHMWPE see the second full paragraph of column 6).

Regarding claim 20, Hughes discloses a container 100 (see FIG. 1) having a source water reservoir W and a filtered water reservoir W', a cartridge 10 (see FIG. 5) in communication with both the source and filter water reservoirs.

Claims 2, 11, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes in view of Krause et al (US 3,522,187).

Hughes fails to specify zirconia hydroxide. For examination purposes, it has been assumed that hydrous zirconium oxide (HZO) is the same as zirconia hydroxide. Krause et al disclose that HZO can be used as a cation exchanger in low acidity or basic solutions (see Table 2 in column 7). Krause et al suggest that such a material can rapidly and selectively recover ions from aqueous solutions (see the second full paragraph of col. 2). It would have been obvious to have modified the filter of Hughes so as to have included HZO as specified by Krause et al in order to provide a cation

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CX-0917.0113

Application/Control Number: 11/927,372

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Art Unit: 1797

exchanger capable of rapidly and selectively removing positively charged ions, including lead, from water.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew O. Savage whose telephone number is (571) 272-1146. The examiner can normally be reached on Monday-Friday, 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew O Savage/

**BRITALP-0005339**

CX-0917.0114

**Appx40352**

Application/Control Number: 11/927,372  
Art Unit: 1797

Page 7

Primary Examiner  
Art Unit 1797

mos

**PATENT**  
**Docket No.: 482.120A**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application:	Art Unit: 1797
Inventor(s): KNIPMEYER, Elizabeth, ET AL.	Examiner: Matthew O. Savage
Appln. No.: 11/927,372	Confirmation No.: 5919
Filing Date: October 29, 2007	
Title: Gravity Flow Carbon Block Filter	

Via Electronic Transmission  
December 15, 2010

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**RESPONSE TO NON-FINAL OFFICE ACTION**

Dear Sir:

In response to the Non-Final Office Action mailed **August 16, 2010** in the above-captioned application, please enter the following amendments and remarks.

**Amendments to the Claims** are reflected in the listing of claims which begins on Page 2 of this paper.

**Remarks/Arguments** begin on Page 7 of this paper.

In re Knipmeyer et al.  
Appl. No. 11/927,372  
Docket No. 482.120A  
Resp. to Non-Final Office Action

**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application:

1. (CURRENTLY AMENDED) A gravity-fed carbon block water filter,  
comprising:  
about 20-90% activated carbon particles;  
~~a~~ about 20-45% binder material interspersed with the activated carbon particles; and  
~~a~~ about 5-40% lead scavenger coupled to at least one of the activated carbon particles and  
binder material, the lead scavenger being for removing lead from water,  
wherein a lead concentration in a final liter of effluent water filtered by the filter is less  
than about 10 µg/liter after about 151 liters (40 gallons) of source water filtration,  
the source water having a pH of 8.5 and containing 135-165 parts per billion total  
lead with 30-60 parts per billion thereof being colloidal lead greater than 0.1 µm  
in diameter,  
wherein the water has an average flow rate of at least 0.1 liter per minute through the  
filter with a head pressure of between approximately 0.1 and 1.0 psi; and  
wherein the binder, the carbon particles, and the lead scavenger are mixed to form a  
substantially homogeneous blend, and the blend is overfilled into a mold in the  
range of approximately 5-20% and the mixture is compressed thereof and then  
heated.
2. (ORIGINAL) The water filter as recited in claim 1, wherein the lead scavenger is  
a zirconia hydroxide.
3. (ORIGINAL) The water filter as recited in claim 1, wherein the binder material is  
hydrophobic.



In re Knipmeyer et al.  
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4. (ORIGINAL) The water filter as recited in claim 1, wherein the binder material has a melt index that is less than 1.8 g/10 min as determined by ASTM D 1238 at 190°C and 15 kg load.
5. (ORIGINAL) The water filter as recited in claim 1, wherein the binder material has a melt index that is less than 1.0 g/10 min as determined by ASTM D 1238 at 190°C and 15 kg load.
6. (CANCELLED) The water filter as recited in claim 1, wherein the structure of the block is characterized by having been compressed no more than 10% by volume during fabrication of the filter.
7. (ORIGINAL) A gravity-flow system for filtering water, comprising:  
  - a container having a source water reservoir than can hold source water and a filtered water reservoir that can hold filtered water;**
  - a cartridge in communication with both the source water reservoir and the filtered water reservoir, the cartridge providing a path through which water can flow from the source water reservoir to the filtered water reservoir; and**
  - a carbon block filter as recited in claim 1 disposed within the cartridge.**
8. (CURRENTLY AMENDED) A gravity-fed carbon block water filter, comprising:  
about 20-90% activated carbon particles; and  
a about 20-45% binder material interspersed with the activated carbon particles, wherein the binder material has a melt index that is less than 1.8 g/10 min as determined by ASTM D 1238 at 190°C and 15 kg load,

In re Knipmeyer et al.  
Appl. No. 11/927,372  
Docket No. 482.120A  
Resp. to Non-Final Office Action

about 5-40% lead scavenger,

~~wherein a structure of the block is characterized by having been compressed less than about 10% by volume during fabrication of the filter,~~

wherein a lead concentration in a final liter of effluent water filtered by the filter is less than about 10 µg/liter after about 151 liters (40 gallons) of source water filtration, the source water having a pH of 8.5 and containing 135-165 parts per billion total lead with 30-60 parts per billion thereof being colloidal lead greater than 0.1 µm in diameter,

wherein water passing through the filter has an average flow rate of at least 0.1 liter per minute through the filter with a head pressure of between approximately 0.1 and 1.0 psi and;

wherein the binder, the carbon particles and the lead scavenger are mixed to form a substantially homogeneous blend, and the blend is overfilled into a mold in the range of approximately 5-20% and the mixture is compressed thereof and then heated.

9. (ORIGINAL) The water filter as recited in claim 8, wherein the binder material has a melt index that is less than 1.0 g/10 min as determined by ASTM D 1238 at 190°C and 15 kg load.
10. (CANCELLED) The water filter as recited in claim 8, further comprising about 5-40 wt% of additional active material including a lead scavenger.
11. (CURRENTLY AMENDED) The water filter as recited in claim 8 ~~10~~, wherein the lead scavenger is a zirconia hydroxide.
12. (ORIGINAL) The water filter as recited in claim 8, wherein the binder material is hydrophobic.

In re Knipmeyer et al.  
Appl. No. 11/927,372  
Docket No. 482.120A  
Resp. to Non-Final Office Action

13. (CURRENTLY AMENDED) A gravity-fed carbon block water filter, comprising:  
about 20-90 wt% activated carbon particles; and  
about ~~5-50~~ 20-45 wt% binder material, the binder material being interspersed with the activated carbon particles and coupled thereto such that a cavity is formed,  
about 5-40% lead scavenger,  
wherein a ratio of a surface area  $A$  ( $\text{cm}^2$ ) of the filter in contact with unfiltered water to a volume  $V$  ( $\text{cm}^3$ ) of the activated carbon particles, binder material, and any additional materials is greater than about  $0.5 \text{ cm}^{-1}$ ,  
wherein the water has an average flow rate of at least 0.1 liter per minute through the filter with a head pressure of between approximately 0.1 and 1.0 psi and;  
wherein the binder, the carbon particles and the lead scavenger are mixed to form a substantially homogeneous blend, and the blend is overfilled into a mold in the range of approximately 5-20% and the mixture is compressed thereof and then heated.
14. (ORIGINAL) The water filter as recited in claim 13, wherein the ratio is less than about 5.
15. (ORIGINAL) The water filter as recited in claim 13, wherein the ratio is less than about 3.
16. (CANCELLED) The water filter as recited in claim 13, further comprising about 5-40 wt% of additional active material including a lead scavenger.
17. (CURRENTLY AMENDED) The water filter as recited in claim 13 ~~16~~, wherein the lead scavenger is a zirconia hydroxide.

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18. (CURRENTLY AMENDED) The water filter as recited in claim ~~13~~ 46, wherein a lead concentration in a final liter of effluent water filtered by the filter is less than about 10 µg/liter after about 151 liters (40 gallons) of source water filtration, the source water having a pH of 8.5 and containing 135-165 parts per billion total lead with 30-60 parts per billion thereof being colloidal lead greater than 0.1 µm in diameter.
19. (ORIGINAL) The water filter as recited in claim 13, wherein the binder material is hydrophobic.
20. (ORIGINAL) A gravity-flow system for filtering water, comprising:
  - a container having a source water reservoir than can hold source water and a filtered water reservoir that can hold filtered water;
  - a cartridge in communication with both the source water reservoir and the filtered water reservoir, the cartridge providing a path through which water can flow from the source water reservoir to the filtered water reservoir; and
  - a carbon block filter as recited in claim 13 disposed within the cartridge.

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### **REMARKS/ARGUMENTS**

#### **A. Status of the Claims**

##### *The Pending Claims*

Claims 1-20 are pending in the applications. Claims 1, 8, 11, 13, 17 and 18 are amended. Claims 6, 10 and 16 are cancelled.

##### *Amendments to the Claims*

Claims 1, 8 and 13 have been amended and require that the binder, the carbon particles, and the lead scavenger are mixed to form a substantially homogeneous blend, and the blend is overfilled into a mold in the range of approximately 5-20% and the mixture is compressed thereof and then heated. The amendment is supported, for example, in [00107] and [00108].

Claim 1 has been amended to recite about 20-90 wt% activated carbon particles, about 20-45% binder material and about 5-40% lead scavenger. The amendment is supported, for example, in [0077], [0085], and [0088].

Similar amendments have been made to Claims 8 and 13.

Claims 11, 17 and 18 have been amended to update claim dependency in view cancelled claims.

No new matter has been added by these amendments.

#### **B. Claim Rejections Under 35 U.S.C. § 102**

Claims 1, 3-10, 12-15 and 18-20 are rejected under 35 USC 102(b) as anticipated by or, in the alternative, under 35 USC 103(a) as obvious over Hughes US6,524,477. Applicants respectfully submit that the newly amended claims are patentable.

Without acquiescing in any way to the rejection, and merely to expedite prosecution of the claims in this application, Applicants have amended the claims to require that the binder, the carbon particles, and the lead scavenger are mixed to form a substantially homogeneous blend, and the blend is overfilled into a mold in the range of approximately 5-20% and the mixture is compressed thereof and then heated. The claims

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also require 20-90 wt% activated carbon particles, 20-45% binder material and 5-40% lead scavenger. Similar amendments have been made to independent claims 8 and 13.

To render a claim unpatentable as anticipated, the prior art reference must teach each and every element of the claim. See, e.g., M.P.E.P. 2131. Applicants submit that Hughes is missing at least two elements present in the amended claims presented herewith.

Hughes generally teaches a filter cup 60 preferably molded from an UHMW polymer as the base material. See col. 6, lines 39-41. Hughes further teaches that once the appropriate binder is selected, it is blended with a granular media 70 and the preferred blend of polymer to granular media can range from 20% granular media and 80% polymer, up to 50% granular media and 50% polymer. See col. 7, lines 10-14. Hughes also teaches that the introduction of or replacement by other media rarely effects the established ratio of 70% polymer to 30% granular media. For example, “if 20% by weight of zeolite is required for the reduction of lead, 10% by weight of powdered carbon is reduced such that the final blend of carbon to polymer maintains the desired ratio of 70% polymer to 30% blended compounds...”. See col. 8, lines 8-15.

In contrast, the amended claims require less polymer than taught by Hughes. Hughes teaches 50-70% and if, for example, a zeolite is included, the polymer % desirably is maintained at 70%. The amended claims require only 5-40% binder (ie., polymer according to Hughes) in the presence of a lead sorbent. Additionally, the amended claims require that the blend is overfilled into a mold in the range of approximately 5-20% and the mixture is compressed thereof and then heated. Hughes doesn't teach or suggest overfilling a mold to achieve compression, nor does Hughes suggest that the filter be compressed and then heated. Applicants submit that the dependent claims recite further distinguishing and non-obvious features of particular utility.

In view of the amendments and comments submitted herewith, Applicants respectfully request the rejection be withdrawn.

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**C. Claim Rejections Under 35 U.S.C. § 103(a)**

Claims 2, 11 and 17 are rejected under 35 USC 103(a) as being unpatentable over Hughes in view of Krause et al US3522187. In view of the amendments and comments submitted in section B above, Applicant believes that it has overcome the rejection of the independent claims, thus no response is required in view of the rejected dependant claims 2, 11 and 17.

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**CONCLUSION**

In view of the foregoing amendments and remarks, Applicants submit that the application is in condition for allowance. If, however, some issue remains which the Examiner feels may be addressed by Examiner's amendment, the Examiner is cordially invited to call the undersigned for authorization.

Please charge any additional fees, including fees for additional extensions of time, or credit overpayment to Deposit Account No. 03 2270.

Respectfully submitted,

Dated: December 15, 2010

By: /Stacy Combs/  
Stacy H. Combs  
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/927,372	10/29/2007	Elizabeth Louise Knipmeyer	482.120A	5919

27019	7590	02/11/2011
THE CLOROX COMPANY		
P.O. BOX 24305		
OAKLAND, CA 94623-1305		

EXAMINER	
SAVAGE, MATTHEW O	

ART UNIT	PAPER NUMBER
1776	

NOTIFICATION DATE	DELIVERY MODE
02/11/2011	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patapps@clorox.com  
 denise.whigham@clorox.com

<b>Office Action Summary</b>	<b>Application No.</b> 11/927,372		<b>Applicant(s)</b> KNIPMEYER ET AL.	
	<b>Examiner</b> Matthew O. Savage		<b>Art Unit</b> 1776	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on 15 December 2010.

2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) 1-5, 7-9, 11-15 and 17-20 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

6) ☒ Claim(s) 1-5, 7-9, 11-15 and 17-20 is/are rejected.

7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5) <input type="checkbox"/> Notice of Informal Patent Application 6) <input type="checkbox"/> Other: _____.
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The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5, 7-9, 11-15, and 17-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The concept of the blend being overfilled into a mold in the range of approximately 5-20% and the mixture being compressed and then heated is considered new matter.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-5, 7-9, 12-15, and 18-20 are rejected under 35 U.S.C. 103(a) as obvious over Hughes (US 6,524,477) in view of Hughes et al (US 2004/0168972).

With respect to claim 1, Hughes discloses a gravity fed carbon block water filter 60 (see FIG. 5) including 20-90% activated carbon particles 70 (e.g., from 20-50%

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activated carbon, see the paragraph spanning columns 6-7), 20-45% of a binder material interspersed with the activated carbon particles (e.g., 50-80% binder, from see the last full paragraph of column 6), and a lead scavenger coupled to the activated carbon particles and binder material for removing lead from water (up to 20% lead scavenger being given as an example, see the first full paragraph of column 8), the filter being capable of removing lead as functionally described in the claim since it includes a ranges of compositions that cover applicant's claimed range, the filter being capable of providing the recited flow rate (see the third full paragraph of column 11). The limitation concerning overfilling of the mold by 5-20% is a process limitation and carries no patentable weight since such a limitation will not affect the structure of the final product. It is noted that the claim recites the process step of compressing the mixture but does not specify the degree to which the mixture is compressed. Hughes discloses placing the mixture in a mold and heating the mixture (see the third full paragraph in col. 8) fails to specify compressing and then heating the mixture. Hughes et al disclose that compressing or maximizing the density by vibrating an analogous mixture prior to heating the mixture is known in the art (see paragraphs 6 and 10-11). Hughes et al suggest that such a sequence of operations ensures that air pockets and voids between the particles are reduced thereby achieving a maximum uniform density of material in the mold leading to the formation a filter media having a torturous flow path (see paragraphs 10-15). It would have been obvious to have modified the product of Hughes so as to have been compressed or vibrated prior to heating as suggested by Hughes et

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al in order to achieve a maximum uniform density of material in the mold prior to heating thereby leading to the formation of a filter having a torturous flow path.

Concerning claim 3, Hughes discloses a binder that is hydrophobic (e.g., UHMWPE see the second full paragraph of column 6).

Regarding claims 4 and 5, Hughes discloses a binder having the recited melt indexes (e.g., UHMWPE see the second full paragraph of column 6).

Regarding claim 7, Hughes discloses a container 100 (see FIG. 1) having a source water reservoir W and a filtered water reservoir W', a cartridge 10 (see FIG. 5) in communication with both the source and filter water reservoirs.

With respect to claim 8, Hughes discloses a gravity fed carbon block water filter 60 (see FIG. 5) including 20-90% activated carbon particles 70 (e.g., from 20-50% activated carbon, see the paragraph spanning columns 6-7), 20-45% of a binder material interspersed with the activated carbon particles having the recited melt index (e.g., 50-80% binder, the binder being UHMWPE, see the last full paragraph of column 6), and 5-40% of a lead scavenger coupled to the activated carbon particles and binder material for removing lead from water (up to 20% lead scavenger being given as an example, see the first full paragraph of column 8), the filter being capable of removing lead as functionally described in the claim since it includes a ranges of compositions that cover applicant's claimed range, the filter being capable of providing the recited flow rate (see the third full paragraph of column 11). The limitation concerning overfilling of the mold by 5-20% is a process limitation and carries no patentable weight since such a limitation will not affect the structure of the final product. It is noted that the claim recites the

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process step of compressing the mixture but does not specify the degree to which the mixture is compressed. Hughes discloses placing the mixture in a mold and heating the mixture (see the third fill paragraph in col. 8) fails to specify compressing and then heating the mixture. Hughes et al disclose that compressing or maximizing the density by vibrating an analogous mixture prior to heating the mixture is known in the art (see paragraphs 6 and 10-11). Hughes et al suggest that such a sequence of operations ensures that air pockets and voids between the particles are reduced thereby achieving a maximum uniform density of material in the mold leading to the formation a filter media having a torturous flow path (see paragraphs 10-15). It would have been obvious to have modified the product of Hughes so as to have been compressed or vibrated prior to heating as suggested by Hughes et al in order to achieve a maximum uniform density of material in the mold prior to heating thereby leading to the formation of a filter having a torturous flow path.

Concerning claim 9, Hughes discloses a binder having the recited melt index (e.g., UHMWPE see the second full paragraph of column 6).

Concerning claim 12, Hughes discloses a binder that is hydrophobic (e.g., UHMWPE see the second full paragraph of column 6).

With respect to claim 13, Hughes discloses a gravity fed carbon block water filter 60 (see FIG. 5) including 20-90 wt% activated carbon particles 70 (e.g., from 20-50% activated carbon, see the paragraph spanning columns 6-7 as well as the first full paragraph of column 7), about 5-50 wt% binder material interspersed with the activated carbon particles and coupled thereto such that a cavity 63 is formed (e.g., 50-80%

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binder, see the first full paragraph of column 7), 5-40% of a lead scavenger (up to 20% lead scavenger being given as an example, see the first full paragraph of column 8), the ratio of surface area of the filter to the volume of filter material being greater than  $.5 \text{ cm}^{-1}$ , and the filter being capable of providing the recited flow rate (see the third full paragraph of column 11). The limitation concerning overfilling of the mold by 5-20% is a process limitation and carries no patentable weight since such a limitation will not affect the structure of the final product. It is noted that the claim recites the process step of compressing the mixture but does not specify the degree to which the mixture is compressed. Hughes discloses placing the mixture in a mold and heating the mixture (see the third full paragraph in col. 8) fails to specify compressing and then heating the mixture. Hughes et al disclose that compressing or maximizing the density by vibrating an analogous mixture prior to heating the mixture is known in the art (see paragraphs 6 and 10-11). Hughes et al suggest that such a sequence of operations ensures that air pockets and voids between the particles are reduced thereby achieving a maximum uniform density of material in the mold leading to the formation a filter media having a torturous flow path (see paragraphs 10-15). It would have been obvious to have modified the product of Hughes so as to have been compressed or vibrated prior to heating as suggested by Hughes et al in order to achieve a maximum uniform density of material in the mold prior to heating thereby leading to the formation of a filter having a torturous flow path.

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As to claims 14 and 15, Hughes discloses the ratio as being less than 5 or 3. Alternatively, altering the physical dimensions of the filter would have been obvious in order to optimize the filter for a specific application.

Concerning claim 18, Hughes discloses a filter being capable of removing lead as functionally described in the claim since it includes lead removal media. Alternatively, modification of the lead removal media would have been obvious in order to optimize the filter for a particular application

Concerning claim 19, Hughes discloses a binder that is hydrophobic (e.g., UHMWPE see the second full paragraph of column 6).

Regarding claim 20, Hughes discloses a container 100 (see FIG. 1) having a source water reservoir W and a filtered water reservoir W', a cartridge 10 (see FIG. 5) in communication with both the source and filter water reservoirs.

Claims 2, 11, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes in view of Krause et al (US 3,522,187).

Hughes fails to specify zirconia hydroxide. For examination purposes, it has been assumed that hydrous zirconium oxide (HZO) is the same as zirconia hydroxide. Krause et al disclose that HZO can be used as a cation exchanger in low acidity or basic solutions (see Table 2 in column 7). Krause et al suggest that such a material can rapidly and selectively recover ions from aqueous solutions (see the second full paragraph of col. 2). It would have been obvious to have modified the filter of Hughes so as to have included HZO as specified by Krause et al in order to provide a cation

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exchanger capable of rapidly and selectively removing positively charged ions, including lead, from water.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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**Appx40395**

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew O. Savage whose telephone number is (571) 272-1146. The examiner can normally be reached on Monday-Friday, 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew O Savage/  
Primary Examiner  
Art Unit 1797

mos

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application:  
Inventor(s): KNIPMEYER, Elizabeth, ET AL.  
Appln. No.: 11/927,372  
Filing Date: October 29, 2007  
Title: Gravity Flow Carbon Block Filter

Art Unit: 1797  
Examiner: Savage, Matthew O.  
Confirmation No.: 5919

Via Electronic Transmission  
DATE May 24, 2011

**RESPONSE TO FINAL OFFICE ACTION with a**  
**Request for Continued Examination and a**  
**1 month extension fee**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In response to the Final Office Action mailed **February 11, 2011** in the above-captioned application, please enter the following amendments and remarks.

This response is filed with a RCE and a 1 month extension fee.

**Amendments to the Claims** are reflected in the listing of claims which begins on Page **2** of this paper.

**Remarks/Arguments** begin on Page **5** of this paper.

In re Knipmeyer et al.  
Appl. No. 11/927,372  
Docket No. 482.120A  
Resp. to Final Office Action with RCE

**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application:

1. (CURRENTLY AMENDED) A gravity-fed carbon block water filter,  
comprising:  
a carbon block comprising a side-wall with a median wall thickness of about 0.15 inches to about 0.60 inches; and wherein the carbon block is comprised of:  
about 20-90% activated carbon particles;  
about 20-45% binder material interspersed with the activated carbon particles;  
and  
about 5-40% lead scavenger coupled to at least one of the activated carbon particles and  
binder material, the lead scavenger being for removing lead from water;  
wherein a lead concentration in a final liter of effluent water filtered by the side-wall of  
the filter is less than about 10 µg/liter after about 151 liters (40 gallons) of source  
water filtration, the source water having a pH of 8.5 and containing 135-165 parts  
per billion total lead with 30-60 parts per billion thereof being colloidal lead  
greater than 0.1 µm in diameter,  
wherein the water has an average flow rate of at least 0.1 liter per minute through the  
filter with a head pressure of between approximately 0.1 and 1.0 psi; ~~and~~  
~~wherein the binder, the carbon particles, and the lead scavenger are mixed to form a~~  
~~substantially homogeneous blend, and the blend is overfilled into a mold in the~~  
~~range of approximately 5-20% and the mixture is compressed thereof and then~~  
~~heated.~~  
wherein the binder, the carbon particles and the lead scavenger are mixed to form a  
substantially homogeneous blend;  
wherein the blend is compressed about 5-20%.
2. (ORIGINAL) The water filter as recited in claim 1, wherein the lead scavenger is  
a zirconia hydroxide.

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3. (ORIGINAL) The water filter as recited in claim 1, wherein the binder material is hydrophobic.
4. (ORIGINAL) The water filter as recited in claim 1, wherein the binder material has a melt index that is less than 1.8 g/10 min as determined by ASTM D 1238 at 190°C and 15 kg load.
5. (ORIGINAL) The water filter as recited in claim 1, wherein the binder material has a melt index that is less than 1.0 g/10 min as determined by ASTM D 1238 at 190°C and 15 kg load.
6. (CANCELLED)
7. (ORIGINAL) A gravity-flow system for filtering water, comprising:
  - a container having a source water reservoir than can hold source water and a filtered water reservoir that can hold filtered water;
  - a cartridge in communication with both the source water reservoir and the filtered water reservoir, the cartridge providing a path through which water can flow from the source water reservoir to the filtered water reservoir; and
  - a carbon block filter as recited in claim 1 disposed within the cartridge.
8. – 19 (CANCELLED)
20. (CURRENTLY AMENDED) A gravity-flow system for filtering water, comprising:
  - a container having a source water reservoir than can hold source water and a filtered water reservoir that can hold filtered water;
  - a cartridge in communication with both the source water reservoir and the filtered water reservoir, the cartridge providing a path through which water can flow from the source water reservoir to the filtered water reservoir; and
  - a carbon block filter as recited in claim ~~13~~ 1 disposed within the cartridge.

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21. (NEW) A gravity-fed carbon block water filter according to claim 1, wherein when the dry carbon block is placed in contact with water, the carbon block readily absorbs the water and allows for immediate water flow.

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Docket No. 482.120A  
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## REMARKS/ARGUMENTS

### A. Status of the Claims

#### *The Pending Claims*

Claims 1-5, 7, 20 and 21 are pending in the application. Claims 1 and 20 are amended. Claim 6 was previously cancelled. Claims 8-19 are cancelled. Claim 21 is new.

#### *Amendments to the Claims*

Claim 1 has been amended to recite that the binder, the carbon particles and the lead scavenger are mixed to form a substantially homogeneous blend and the blend is compressed 5-20%. The amendment is supported, for example, in [00107] and [00108].

Claim 1 is amended to recite that the carbon block comprises a side-wall with a median wall thickness of about 0.15 inches to about 0.60 inches. The amendment is supported, for example, in [0094].

Claim 1 is amended to recite that the lead concentration in a final liter of effluent water filtered by “the side-wall of the filter” is less than about 10 µg/liter.... The amendment is supported, for example, [00112] and Fig. 11.

New claim 21 recites a gravity-fed carbon block wherein when the dry carbon block is placed in contact with water, the carbon block readily absorbs the water and allows for immediate water flow. The claim is supported, for example, in [0083].

No new matter has been added by these amendments.

### B. Rejections under 35 USC 112, first paragraph

Claims 1-5, 7-9, 11-15 and 17-20 are rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement. “The concept of the blend being overfilled into a mold in the range of approximately 5-20% and the mixture being compressed and then heated is considered new matter”. See page 2 of the office action.

Without acquiescing in any way to the rejection, and to expedite prosecution of the claims in this application, Applicants have cancelled the rejected limitation.

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Resp. to Final Office Action with RCE

**C. Claim Rejections Under 35 U.S.C. § 103(a)**

Claims 1, 3-5, 7-9, 12-15 and 18-20 are rejected under 35 USC 103(b) as obvious over Hughes US6,524,477 in view of Hughes et al US2004/0168972. Applicants respectfully submit the following arguments and that the newly amended claims are patentable in view of the cited art. Claims 6 and 8-19 have been cancelled.

Without acquiescing in any way to the rejection, and to expedite prosecution of the claims in this application, Applicants have amended claim 1 to recite that the binder, the carbon particles and the lead scavenger are mixed to form a substantially homogeneous blend and the blend is compressed 5-20%.

The step of compressing the block materially affects the structural makeup of the block. Accordingly, the porosity and pore structure is affected by compression. One skilled in the art would assume that adding compression to a gravity flow carbon block would result in a low flow rate that would not be consumer acceptable. Applicants surprisingly found that this is not the case and also found that the block can achieve better filtration capability, including the ability to remove colloidal lead, without the need to add additional materials to the center of the block.

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art. *KSR International Co. v. Teleflex Inc.*, 550 U.S. \_\_\_, \_\_\_, 82 USPQ2d 1385, 1396 (2007); MPEP 2143.01(III). The present invention is designed to remove colloidal lead in a gravity flow system, a problem well known to those skilled in the art. Hughes' filter is designed to remove microorganisms. Hughes et al is teaching a novel method using vibration to make a carbon block. Neither of the references describe or suggest the problem of colloidal lead. Accordingly, the references do not teach all of the claimed elements and teach away. There is no suggestion or motivation to modify or combine the references and no reasonable expectation of success.

In order to establish a *prima facie* case of obviousness, the Examiner must demonstrate that 1) the references teach all the claimed elements; 2) there is a suggestion



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or motivation in the prior art to modify or combine the reference teachings; and 3) there is a reasonable expectation of success. MPEP § 2143; In re Vaack 20 USPQ2d 1438 (Fed. Cir. 1991).

**Applicants submit that Hughes is missing at least three elements present in the amended claims presented herewith and Hughes teaches away from the claimed invention at least one time.**

Hughes describes preferred blends of polymers that can be used to make the filter cup, see for example, col. 7, lines 10-14. The polymer range taught is 50% polymer to 80% polymer. Hughes doesn't describe or suggest the binder range claimed by Applicant, which is 20-45%. **This is missing element number 1.**

Applicants amended claims require that the side wall of the block be capable of a lead concentration in a final liter of effluent water filtered is less than about 10 µg/liter after about 151 liters (40 gallons) of source water filtration, the source water having a pH of 8.5 and containing 135-165 parts per billion total lead with 30-60 parts per billion thereof being colloidal lead greater than 0.1 µm in diameter. Hughes doesn't describe or suggest that the filter wall is capable of the claimed lead contaminant removal level. **This is missing element number 2.**

The amended claims recite that the blend is compressed about 5-20%. Hughes doesn't describe or suggest compressing the block. **This is missing element number 3.**

Hughes teaches that the desired performance of the cartridge may also include removal of lead and/or heavy metals and one can add a lead reduction media. "In any event, the introduction of or replacement by other media rarely effects the established ratio of 70% polymer to 30% granular media". See col. 8, lines 8-10. Hughes teaches that if 20% zeolite (a lead sorbent) is required, the polymer should remain at 70% and the amount of carbon reduced. See col. 8, lines 10-14. Furthermore, col. 15, Formula #4, demonstrates that less than 70% polymer results in poor performance. Accordingly, Hughes teaches away from using less than 70% polymer in the gravity flow carbon block, and in no instance does Hughes suggest the lower range claimed by Applicant. **This is teaching away number 1.**

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Hughes et al doesn't cure the deficiencies of Hughes. The Office provides that "Hughes et al disclose that compressing or maximizing the density by vibrating an analogous mixture prior to heating the mixture is known in the art (see para 6 and 10-11)...and that [i]t would have been obvious to have modified the product of Hughes so as to have been compressed or vibrated prior to heating as suggested by Hughes et al. in order to achieve a maximum uniform density of material...".

Hughes et al describes and teaches a novel method to make a filtration device, and the novel method is based on the steps of vibrating and then sintering polymers. See, for example, the abstract, which provides that the materials are vibrated in place of compression. Hughes et al is teaching away from using compression as a method of making a carbon block. See also col. 4, lines 39-52. Assuming, arguendo, Hughes doesn't teach away, he teaches "the material [ie., blended carbon and binder] is thoroughly blended together, poured into a cylinder shaped mold, compressed so as to compress the blended material *as much as possible*". Emphasis added. The amended claims recite only 5-20% compression. If the presently claimed block was compressed as much as possible, Applicant submits water would not flow under the force of gravity.

In summary, Hughes is missing the claimed binder range of 20-45%. Hughes et al doesn't cure this deficiency. Hughes is missing the claimed colloidal lead removal ability. Hughes et al doesn't cure this deficiency. Hughes is missing the claimed compression range in combination with a gravity flow block. Hughes et al doesn't cure this deficiency.

Hughes teaches a gravity flow filtration block designed for a completely different reason than Applicant. As a result, Hughes' patent is missing a teaching or suggestion of three elements Applicant is claiming. Hughes also teaches away from the claimed block in at least one instance. Thus, Hughes doesn't describe or suggest the invention as presented in the amended claims submitted herewith. Hughes et al doesn't cure the deficiencies and teaches away from using 5-20% compression. Thus, there is no suggestion or motivation to modify or combine the references and no reasonable expectation of success.

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Applicants submit that the dependent claims recite further distinguishing and non-obvious features of particular utility.

In view of the amendments and comments submitted herewith, Applicants respectfully request the rejection be withdrawn.

**D. Claim Rejections Under 35 U.S.C. § 103(a)**

Claims 2, 11 and 17 are rejected under 35 USC 103(a) as being unpatentable over Hughes in view of Krause et al US3522187. In view of the amendments and comments submitted in section C above, Applicant believes that it has overcome the rejection of the independent claims, thus no response is required in view of the rejected dependant claims 2.

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**CONCLUSION**

In view of the foregoing amendments and remarks, Applicants submit that the application is in condition for allowance. If, however, some issue remains which the Examiner feels may be addressed by Examiner's amendment, the Examiner is cordially invited to call the undersigned for authorization.

Please charge any additional fees, including fees for additional extensions of time, or credit overpayment to Deposit Account No. 03 2270.

Respectfully submitted,

Dated: May 24, 2011

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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THE CLOROX COMPANY		
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EXAMINER	
SAVAGE, MATTHEW O	

ART UNIT	PAPER NUMBER
1778	

NOTIFICATION DATE	DELIVERY MODE
06/28/2011	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patapps@clorox.com  
 denise.whigham@clorox.com  
 leslie.jennings@clorox.com

<b>Office Action Summary</b>	<b>Application No.</b> 11/927,372	<b>Applicant(s)</b> KNIPMEYER ET AL.	
	<b>Examiner</b> MATTHEW SAVAGE	<b>Art Unit</b> 1778	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on 24 May 2011.

2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) 1-5, 7, 20 and 21 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

6) ☒ Claim(s) 1-5, 7, 20 and 21 is/are rejected.

7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5) <input type="checkbox"/> Notice of Informal Patent Application 6) <input type="checkbox"/> Other: _____.
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Page 2

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5, 7, 20, and 21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With respect to claim 1, the original specification fails to provide a basis for an embodiment of a filter having a median wall thickness of .15-.6 inches, 20-90% activated carbon, 20-45% binder, 5-40% lead scavenger, the blend being compressed to 5-20%, and having the capability of providing a lead concentration in a final liter of effluent water filtered by the side-wall of the filter of less than about 10 µg/liter after about 151 liters (40 gallons) of source water filtration, the source water having a pH of 8.5 and containing 135-165 parts per billion total lead with 30-60 parts per billion thereof being colloidal lead greater than 0.1 µm in diameter, the water having an average flow rate of at least 0.1 liter per minute through the filter with a head pressure of between approximately 0.1 and 1.0 psi, the filter being made by compressing a blend by about 5-20%.

It is noted that the concept of the filter block of claim 1 being capable of functioning as recited in claim 21 is considered new matter.

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CX-0917.0179

**Appx40417**

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Applicant is advised that should claim 7 be found allowable, claim 20 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

On line 2 of claim 21, "the dry carbon block" lacks antecedent basis.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**BRITALP-0005405**

CX-0917.0180



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Claims 1, 3-5, 7, 20, and 21 are rejected under 35 U.S.C. 103(a) as obvious over Hughes (US 6,524,477) in view of Hughes et al (US 2004/0168972) and Rawson et al (US 2008/0023406).

With respect to claim 1, Hughes discloses a gravity fed carbon block water filter 60 (see FIG. 5) having a sidewall with a median wall thickness of about .15 to about .6 inch (see line 43 of col. 11), the filter block including 20-90% activated carbon particles 70 (e.g., from 20-50% activated carbon, see the paragraph spanning columns 6-7), 50-60% of a binder material interspersed with the activated carbon particles (e.g., 50-60% binder, from see lines 16-19 of column 6), and 20-45% of a lead scavenger coupled to the activated carbon particles (see lines 3-15 of col. 8), the filter being capable of removing soluble lead or insoluble colloidal lead since it includes the same sorbents as disclosed in applicant's specification (e.g., Enghardt's ATS and Selecto Scientific's Alusil, see lines 3-15 of col. 8), the filter being capable of providing the recited flow rate (see the third full paragraph of column 11), the binder, carbon particles and the lead scavenger being mixed to form a substantially homogeneous blend (see lines 26-51 of col. 8). Hughes discloses 50-60% binder but fails to specify 20-45% binder. Hughes teaches that the amount granular filter material including a lead sorbent and activated carbon can be adjusted to accommodate the removal of a predetermined amount of lead and to accommodate a predetermined flow rate of water (see lines 23-27 of col. 12). It would have been obvious to have modified the filter of Hughes so as to have included 55% granular filter material and 45% binder as claimed in order to provide a required amount of granular filtration material to remove a predetermined amount of

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lead and to accommodate a predetermined flow rate for a specific filtering application. Alternatively, Hughes et al discloses an analogous filter including 25-35% binder and 65-75% granular media and suggests that such a ratio optimizes the flow rate with respect to the pressure drop across the filter (see paragraphs 56-58). It would have been obvious to have modified the filter of Hughes so as to have included 35-35% binder as suggested by Hughes et al in order to optimize flow rate with the pressure drop across the filter. Hughes and Hughes et al fail to specify removing soluble and insoluble colloidal lead at a pH of 8.5 as claimed. Rawson et al disclose a filter that includes a lead sorbent for removing soluble lead and a lead sorbent for removing insoluble colloidal lead for treating water having a pH of 8.5 and teaches that such a combination enables the removal of both soluble and insoluble forms of lead from drinking water. It would have been obvious to have modified the combination of Hughes and Hughes et al so as to have included the required amounts of a sorbent for removing soluble lead and a sorbent for removing insoluble lead in order to enable the removal of both soluble and insoluble lead from water at a pH of 8.5 as recited in claim 1. Hughes discloses placing the mixture in a mold and heating the mixture (see the third fill paragraph in col. 8) but fails to specify compressing the blend by 5-20%. Hughes et al disclose that compressing or maximizing the density by vibrating an analogous mixture prior to heating the mixture is known in the art (see paragraphs 6 and 10-11). Hughes et al suggest that such a sequence of operations ensures that air pockets and voids between the particles are reduced thereby achieving a maximum uniform density of material in the mold leading to the formation a filter media having a torturous flow path

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and capable of relatively high flow rates at low pressure drops (see paragraphs 10-15). It would have been obvious to have modified the product of Hughes so as to have been compressed or vibrated prior to heating as suggested by Hughes et al in order to achieve a maximum uniform density of material in the mold prior to heating thereby leading to the formation of a filter having a torturous flow path having a high flow rate at a relatively low pressure drop. Hughes et al fail to specify compressing the blend by 5-20%, however, such a modification would have been obvious in order to fully remove the air pockets and voids between the particles and to ensure the formation of a filter block having a uniform density as desired by Hughes et al.

Concerning claim 3, Hughes discloses a binder that is hydrophobic (e.g., UHMWPE see the second full paragraph of column 6).

Regarding claims 4 and 5, Hughes discloses a binder having the recited melt indexes (e.g., UHMWPE see the second full paragraph of column 6).

Regarding claims 7 and 20, Hughes discloses a container 100 (see FIG. 1) having a source water reservoir W and a filtered water reservoir W', a cartridge 10 (see FIG. 5) in communication with both the source and filter water reservoirs.

As to claim 21, Hughes discloses an embodiment that is inherently capable of functioning as recited in claim 21 (e.g., the second non-microbial embodiment described on lines 20-58 of col. 2) since it has the same composition the extent recited in instant claim 1.

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Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes in view of Krause et al (US 3,522,187).

Hughes fails to specify zirconia hydroxide. For examination purposes, it has been assumed that hydrous zirconium oxide (HZO) is the same as zirconia hydroxide. Krause et al disclose that HZO can be used as a cation exchanger in low acidity or basic solutions (see Table 2 in column 7). Krause et al suggest that such a material can rapidly and selectively recover ions from aqueous solutions (see the second full paragraph of col. 2). It would have been obvious to have modified the filter of Hughes so as to have included HZO as specified by Krause et al in order to provide a cation exchanger capable of rapidly and selectively removing positively charged ions, including lead, from water.

Applicant's arguments filed 5-24-11 have been fully considered but they are not persuasive.

Applicant's argument that Hughes fails to specify a binder range of 20-45% is noted, however, such a modification is considered obvious over Hughes alone or in view of Hughes et al for the reasons explained above.

Applicant argues that Hughes fails to specify a side wall of the filter as being capable as functioning as recited in claim 1, however, it is held that the filter suggested by the prior art is capable of such a function since Hughes teaches a weight percentage of lead sorbent that falls within applicant's claimed range and because the Hughes and

**BRITALP-0005409**

CX-0917.0184

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Rawson et al disclose lead sorbents that are capable of removing both soluble and insoluble colloidal lead as explained above.

Applicants argument that Hughes et al teach against using less than 70% binder is not agreed with since Hughes gives an example of using 50% binder and clearly suggests altering the percentage of binder, granular activated carbon, and granular lead sorbent to attain the desired flow rate and lead removal capacity (see from line 10 of col. 12 to line 15 of col. 13).

Applicant argues that Hughes et al teaches away from compression, however, Hughes discloses the use of vibration to compact the filter media mixture which can be considered a form compression since the volume of the filter media is reduced as it is vibrated and compacted.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew O. Savage whose telephone number is (571) 272-1146. The examiner can normally be reached on Monday-Friday, 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

**BRITALP-0005410**

CX-0917.0185

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew O Savage/  
Primary Examiner  
Art Unit 1797

mos

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application:	Art Unit: 1797
Inventor(s): KNIPMEYER, Elizabeth, ET AL.	Examiner: Savage, Matthew O.
Appln. No.: 11/927,372	Confirmation No.: 5919
Filing Date: October 29, 2007	
Title: Gravity Flow Carbon Block Filter	

Via Electronic Transmission  
September 28, 2011

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**RESPONSE TO NON-FINAL OFFICE ACTION**

Dear Sir:

In response to the Non-Final Office Action mailed **June 28, 2011** in the above-captioned application, please enter the following amendments and remarks.

**Amendments to the Claims** are reflected in the listing of claims which begins on Page **2** of this paper.

**Remarks/Arguments** begin on Page **4** of this paper.

In re Knipmeyer et al.  
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Docket No. 482.120A  
Resp. to Non-Final Office Action

**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application:

1. (CURRENTLY AMENDED) A gravity-fed carbon block water filter,  
comprising:  
a carbon block comprising a side wall with a median wall thickness of about 0.15 inches to about 0.60 inches; and wherein the carbon block is comprised of:  
about 20-90% activated carbon particles;  
about 20-45% binder material interspersed with the activated carbon particles;  
and  
about 5-40% lead scavenger coupled to at least one of the activated carbon particles and binder material, the lead scavenger being for removing lead from water;  
wherein a lead concentration in a final liter of effluent water filtered by the carbon block side wall of the filter is less than about 10 µg/liter after about 151 liters (40 gallons) of source water filtration, the source water having a pH of 8.5 and containing 135-165 parts per billion total lead with 30-60 parts per billion thereof being colloidal lead greater than 0.1 µm in diameter,  
wherein the water has an average flow rate of at least 0.1 liter per minute through the filter with a head pressure of between approximately 0.1 and 1.0 psi; ~~and~~  
wherein the binder, the carbon particles and the lead scavenger are mixed to form a substantially homogeneous blend;  
wherein the blend is compressed about 5-20% and at a pressure less than about 100psi.
2. (ORIGINAL) The water filter as recited in claim 1, wherein the lead scavenger is a zirconia hydroxide.
3. (ORIGINAL) The water filter as recited in claim 1, wherein the binder material is hydrophobic.



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4. (ORIGINAL) The water filter as recited in claim 1, wherein the binder material has a melt index that is less than 1.8 g/10 min as determined by ASTM D 1238 at 190°C and 15 kg load.
5. (ORIGINAL) The water filter as recited in claim 1, wherein the binder material has a melt index that is less than 1.0 g/10 min as determined by ASTM D 1238 at 190°C and 15 kg load.
6. (CANCELLED)
7. (ORIGINAL) A gravity-flow system for filtering water, comprising:
  - a container having a source water reservoir than can hold source water and a filtered water reservoir that can hold filtered water;
  - a cartridge in communication with both the source water reservoir and the filtered water reservoir, the cartridge providing a path through which water can flow from the source water reservoir to the filtered water reservoir; and
  - a carbon block filter as recited in claim 1 disposed within the cartridge.
8. – 19 (CANCELLED)
20. (CANCELLED) A gravity-flow system for filtering water, comprising:
  - a container having a source water reservoir than can hold source water and a filtered water reservoir that can hold filtered water;
  - a cartridge in communication with both the source water reservoir and the filtered water reservoir, the cartridge providing a path through which water can flow from the source water reservoir to the filtered water reservoir; and
  - a carbon block filter as recited in claim 1 disposed within the cartridge.
21. (CURRENTLY AMENDED) A gravity-fed carbon block water filter according to claim 1, wherein when the ~~dry~~ carbon block is dry and placed in contact with water, the carbon block readily absorbs the water and allows for immediate water flow.

In re Knipmeyer et al.  
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Docket No. 482.120A  
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### **REMARKS/ARGUMENTS**

#### **A. Status of the Claims**

##### *The Pending Claims*

Claims 1-5, 7 and 21 are pending in the application. Claims 1 and 21 are amended. Claim 6, 8-19 were previously cancelled. Claim 20 is cancelled by the present amendment.

##### *Amendments to the Claims*

Claim 1 has been amended to recite that the blend is compressed at a pressure of less than about 100psi. The amendment is supported, for example, in [00107].

Claim 1 has been amended to recite that the water is filtered by the carbon block. The amendment is supported, for example, in Figs. 10 and 14, and in [0083].

Claim 1 is amended to cancel limitations previously presented.

Claim 21 is amended to correct a defect in antecedent basis. The term “dry carbon block” does not have antecedent basis and is now correctly presented in the claim.

No new matter has been added by the amendment.

#### **B. Rejections under 35 USC 112, first paragraph**

Claims 1-5, 7, 20 and 21 are rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement. The Examiner believes that the original specification fails to provide a basis for the embodiment described by claim 1.

To expedite prosecution and without acquiescing to the rejection, claims 1 and 21 have been amended and claim 20 has been cancelled. In view of the amendments submitted herewith, Applicants respectfully request the rejection be withdrawn.

#### **C. Rejections under 35 USC 112, second paragraph**

Claim 21 is rejected under 35 USC 112, second paragraph, as being indefinite. On line 2, “the dry carbon block” lacks antecedent basis. In response, Applicant notes that it mistakenly referred to “the” dry carbon block in claim 1. Claim 21 has been amended to

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properly introduce the new limitation. In view of the amendments submitted herewith, Applicants respectfully request the rejection be withdrawn.

**D. Claim Rejections Under 35 U.S.C. § 103(a)**

Claims 1, 3-5, 7-, 20 and 21 are rejected under 35 USC 103(b) as obvious over Hughes US6,524,477 in view of Hughes et al US2004/0168972 and further in view of Rawson et al US2008/0023406. Applicants respectfully submit the following arguments and that the newly amended claims are patentable in view of the cited art. Claim 20 has been cancelled.

In order to establish a *prima facie* case of obviousness, the Examiner must demonstrate that 1) the references teach all the claimed elements; 2) there is a suggestion or motivation in the prior art to modify or combine the reference teachings; and 3) there is a reasonable expectation of success. MPEP § 2143; In re Vaeck 20 USPQ2d 1438 (Fed. Cir. 1991).

Without acquiescing to the rejection, and to expedite prosecution of the claims in this application, Applicants have amended claim 1 to recite that the blend is compressed at a pressure of less than about 100psi and that the water is filtered by the carbon block. The amendments are made to more clearly and concisely describe the invention.

**1) The references don't teach all the claimed elements.**

Pending claim 1 requires at least about 20-90% activated carbon particles, about 20-45% binder material, and about 5-40% lead scavenger, wherein a lead concentration in a final liter of effluent water filtered by the carbon block is less than about 10 µg/liter after about 151 liters (40 gallons) of source water filtration, the source water having a pH of 8.5 and containing 135-165 parts per billion total lead with 30-60 parts per billion thereof being colloidal lead greater than 0.1 µm in diameter, and the water has an average flow rate of at least 0.1 liter per minute through the filter with a head pressure of between approximately 0.1 and 1.0 psi; the binder, the carbon particles and the lead scavenger are mixed to form a substantially homogeneous blend, the blend is compressed about 5-20% and at a pressure less than about 100psi.

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None of the references, alone or in combination, teach all the claimed limitations. Hughes, Hughes et al., nor Rawson et al, teach compressing a carbon block for gravity flow filtration about 5-20% and at a pressure less than about 100psi. Hughes and Rawson et al. are silent regarding compression. In fact, Rawson et al. describes a granular filter, not a carbon block. Hughes et al. describes vibration of the materials versus compression. The Examiner provides that “[A]pplicant argues that Hughes et al teaches away from compression, however, Hughes et al discloses the use of vibration to compact the filter media mixture which can be considered a form of compression since the volume of the filter media is reduced as it is vibrated and compacted” (see page 8 of the outstanding office action). Applicant respectfully disagrees. Hughes et al explicitly teaches that “[T]he method of the present invention utilizes vibration *rather than* compression of the materials to be sintered. Vibration optimizes how all the materials fill the mold completely *without force* or deformation of the particles” (see col. 6, lines 13-16). Emphasis added. In contrast, the pending claims require from about 5-20% compression [ie., force] at a pressure less than about 100psi. Hughes et al also teaches that “...in place of compression to increase density, the materials comprising the filtration device of the present invention *are instead vibrated* into a mold cavity” (see the abstract). Emphasis added.

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) (MPEP 2143.01V).

**2) there is no suggestion or motivation in the prior art to modify or combine the reference teachings and thus, 3) no reasonable expectation of success.**

The present invention is a compressed, gravity flow carbon block made of carbon, binder and lead sorbent and designed to remove colloidal lead in a gravity flow system. Hughes’ filter is designed to remove microorganisms and is not compressed. Furthermore, Hughes teaches how to make a polymeric block filter that includes carbon and optionally a lead sorbent. The Applicants’ filter is a compressed carbon block filter

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that includes binder and a lead sorbent. Hughes et al teaches a novel method using vibration, versus compression, and Rawson et al teaches removing lead with a granular filter (see, for example, [0017], lines 9-13)). There is no suggestion or motivation to modify or combine the references and no reasonable expectation of success to anticipate the pending claim set.

In the office action, the Examiner provides that “[I]t would have been obvious to have modified the filter of Hughes so as to have included 55% granular filter material and 45% binder as claimed in order to provide a required amount of granular filtration material to remove a predetermined amount of lead” (see page 4 of the office action). Hughes, as noted by the Examiner on page 8 of the office action, teaches using 50% binder with 50% lead sorbent/carbon blend (see col. 12, line 10 to line 57).

In response, Applicant submits that Hughes fails to teach how much carbon and lead sorbent is in the blend, thus Hughes doesn’t teach all of the claimed limitations. Also, Hughes teaches to remove lead, in general. Applicant submits that removal of colloidal lead is a separate problem.

Applicant maintains that Hughes doesn’t suggest or describe using 20-90% carbon, 20-45% binder and 5-40% lead scavenger to make a gravity flow carbon block that is compressed 5-20% and at a pressure less than 100 psi. and capable of removing colloidal lead as claimed.

The Examiner further provides that “[A]lternatively, Hughes et al discloses an analogous filter including 25-35% binder and 65-75% granular media (see paragraphs 56-58)”. In response, Applicant disagrees and maintains that Hughes et al doesn’t cure the deficiencies of Hughes. Hughes et al does not describe or suggest compression and pressure. In fact, Hughes et al is teaching away from using compression. Hughes et al also doesn’t describe or suggest removing colloidal lead.

The Examiner provides on page 7 of the office action that “...Hughes teaches a weight percentage of lead sorbent that falls within applicant’s claimed range and because Hughes and Rawson et al disclose lead sorbents that are capable of removing both

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soluble and insoluble colloidal lead as explained above”. In response, Applicants believe this point is moot in view of the amendments and arguments presented above.

Accordingly, Rawson does not cure the deficiencies of Hughes. Rawson describes removing lead with a granular filter.

Applicants submit that the dependent claims recite further distinguishing and non-obvious features of particular utility.

In view of the amendments and comments submitted herewith, Applicants respectfully request the rejection be withdrawn.

#### **E. Claim Rejections Under 35 U.S.C. § 103(a)**

Claim 2 is rejected under 35 USC 103(a) as being unpatentable over Hughes in view of Krause et al US3522187. In view of the amendments and comments submitted in section D above, Applicant believes that it has overcome the rejection of the independent claims, thus no response is required in view of the rejected dependant claim 2.

#### **F. Arguments in view of Claim 21**

Applicants submit that none of the cited art, alone or in combination, anticipate claim 21. Claim 21 recites that when the carbon block is dry and placed in contact with water, the carbon block readily absorbs the water and allows for immediate water flow. In contrast, Hughes teaches that “[I]n order to prime the preferred filtration cartridge 10, a special prewetting step is required” (see col. 11, lines 60-61). Hughes et al teaches making a gravity flow filtration block in Application 1 and Col. 19, lines 30-33 teach that “[O]ver a period 10 minutes the cup gradually wetted down as it was re-filled continuously. As the cup became fully moistened the flow rate increased to well above 200 ml per minute”. Rawson et al teaches a granular filter, not a carbon block.

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**CONCLUSION**

In view of the foregoing amendments and remarks, Applicants submit that the application is in condition for allowance. If, however, some issue remains which the Examiner feels may be addressed by Examiner's amendment, the Examiner is cordially invited to call the undersigned for authorization.

Please charge any additional fees, including fees for additional extensions of time, or credit overpayment to Deposit Account No. 03 2270.

Respectfully submitted,

Dated: September 28, 2011

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/927,372	10/29/2007	Elizabeth Louise Knipmeyer	482.120A	5919

27019	7590	10/19/2011
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EXAMINER	
SAVAGE, MATTHEW O	

ART UNIT	PAPER NUMBER
1778	

NOTIFICATION DATE	DELIVERY MODE
10/19/2011	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5, 7, 20, and 21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With respect to claim 1, the original specification fails to provide a basis for an embodiment of a filter 20-90% activated carbon, 20-45% binder, 5-40% lead scavenger, the blend being compressed to 5-20%, and having the capability of providing a lead concentration in a final liter of effluent water filtered by the side-wall of the filter of less than about 10 µg/liter after about 151 liters (40 gallons) of source water filtration, the source water having a pH of 8.5 and containing 135-165 parts per billion total lead with 30-60 parts per billion thereof being colloidal lead greater than 0.1 µm in diameter, the water having an average flow rate of at least 0.1 liter per minute through the filter with a head pressure of between approximately 0.1 and 1.0 psi, the filter being made by compressing a blend by about 5-20% and a pressure less than 100 psi. Applicant should note that only example 7 given in the specification includes the claimed lead removal and flow rate characteristics, the composition being limited to 40-50 wt.% 80X325 activated carbon particles, 40 wt.% UHMWPE binder (e.g., GUR 2122 binder,

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see paragraph 161), 10-15 wt% lead scavenger having a particle size of 25-70 micron (see table IX, formulations PA 1-1, PA 1-2, PA 2-1, PA 2-2, PA 2-3, PT 2-1, and PT 2-3), the example not specifying any degree of compression, the example including a density and thickness as implied by the volume, surface area, and weight of the carbon blocks (see paragraph 158 and table VII). It is noted that "60.6 cm<sup>3</sup>" should be changed to --60.6 cm<sup>2</sup>-- on line 2 of paragraph 158.

The concept of the filter block of claim 1 being capable of functioning as recited in claim 21 is considered new matter. Applicant should note that the embodiment that readily absorbs water is limited to that disclosed in table 1 and paragraph 133 which includes 20% wt.% VHMWPE and 80 wt. % 80X200 mesh activated carbon particles, and does not include a lead scavenger or specify any degree of compression.

Claims 1-5, 7, 20, and 21 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for formulations PA 1-1, PA 1-2, PA 2-1, PA 2-2, PA 2-3, PT 2-1, and PT 2-3 given in table IX, does not reasonably provide enablement for all of the possible formulations recited in claims 1-5. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. Applicant should note that only example 7 given in the specification includes the claimed lead removal and flow rate characteristics, the composition being limited to 40-50 wt.% 80X325 activated carbon particles, 40 wt.% UHMWPE binder (e.g., GUR 2122

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binder, see paragraph 161), 10-15 wt% lead scavenger having a particle size of 25-70 micron (see table IX, formulations PA 1-1, PA 1-2, PA 2-1, PA 2-2, PA 2-3, PT 2-1, and PT 2-3), the example not specifying any degree of compression, the example including a density and thickness as implied by the volume, surface area, and weight of the carbon blocks (see paragraph 158 and table VII).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5, 7, and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear as to how the filter recited in claim 1 can perform the recited lead removal and flow rate functions the thickness and density of the filter block, the particle size of the activated carbon and lead removal media, and the weight percentages of the activated carbon, lead removal media, and binder have not been recited in the claim.

On line 3 of claim 21, it is unclear as to what absorbance rate "readily adsorbs" implies.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the

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subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-5, 7, and 21 are rejected under 35 U.S.C. 103(a) as obvious over Hughes (US 6,524,477) in view of Hughes et al (US 2004/0168972) and Rawson et al (US 2008/0023406).

With respect to claim 1, Hughes discloses a gravity fed carbon block water filter 60 (see FIG. 5) including 20-90% activated carbon particles 70 (e.g., from 20-50% activated carbon, see the paragraph spanning columns 6-7), 50-60% of a binder material interspersed with the activated carbon particles (e.g., 50-60% binder, from see lines 16-19 of column 6), and 20-45% of a lead scavenger coupled to the activated carbon particles (see lines 3-15 of col. 8), the filter being capable of removing soluble lead or insoluble colloidal lead since it includes the same sorbents as disclosed in applicant's specification (e.g., Enghardt's ATS and Selecto Scientific's Alusil, see lines 3-15 of col. 8), the filter being capable of providing the recited flow rate (see the third full paragraph of column 11), the binder, carbon particles and the lead scavenger being mixed to form a substantially homogeneous blend (see lines 26-51 of col. 8). Hughes discloses 50-60% binder but fails to specify 20-45% binder. Hughes teaches that the amount granular filter material including a lead sorbent and activated carbon can be adjusted to accommodate the removal of a predetermined amount of lead and to accommodate a predetermined flow rate of water (see lines 23-27 of col. 12). It would have been obvious to have modified the filter of Hughes so as to have included 55%

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granular filter material and 45% binder as claimed in order to provide a required amount of granular filtration material to remove a predetermined amount of lead and to accommodate a predetermined flow rate for a specific filtering application. Alternatively, Hughes et al discloses an analogous filter including 25-35% binder and 65-75% granular media and suggests that such a ratio optimizes the flow rate with respect to the pressure drop across the filter (see paragraphs 56-58). It would have been obvious to have modified the filter of Hughes so as to have included 35-35% binder as suggested by Hughes et al in order to optimize flow rate with the pressure drop across the filter. Hughes and Hughes et al fail to specify removing soluble and insoluble colloidal lead at a pH of 8.5 as claimed. Rawson et al disclose a filter that includes a lead sorbent for removing soluble lead and a lead sorbent for removing insoluble colloidal lead for treating water having a pH of 8.5 and teaches that such a combination enables the removal of both soluble and insoluble forms of lead from drinking water. It would have been obvious to have modified the combination of Hughes and Hughes et al so as to have included the required amounts of a sorbent for removing soluble lead and a sorbent for removing insoluble lead in order to enable the removal of both soluble and insoluble lead from water at a pH of 8.5 as recited in claim 1. Hughes discloses placing the mixture in a mold and heating the mixture (see the third fill paragraph in col. 8) but fails to specify compressing the blend by 5-20%. Hughes et al disclose that compressing or maximizing the density by vibrating an analogous mixture prior to heating the mixture is known in the art (see paragraphs 6 and 10-11). Hughes et al suggest that such a sequence of operations ensures that air pockets and voids between

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the particles are reduced thereby achieving a maximum uniform density of material in the mold leading to the formation a filter media having a torturous flow path and capable of relatively high flow rates at low pressure drops (see paragraphs 10-15). It would have been obvious to have modified the product of Hughes so as to have been compressed or vibrated prior to heating as suggested by Hughes et al in order to achieve a maximum uniform density of material in the mold prior to heating thereby leading to the formation of a filter having a torturous flow path having a high flow rate at a relatively low pressure drop. Hughes et al specify compressing the blend at a pressure less than 100 psi (e.g., at atmospheric pressure) but fail to specify compressing the blend by 5-20%, however, such a degree of compression would have been obvious in order to fully remove the air pockets and voids between the particles and to ensure the formation of a filter block having a uniform density as desired by Hughes et al. Alternatively, the limitation of the blend being compressed to about 5-20% at a pressure of less than 100 psi relates to a method of making the filter block and fails to carry patentable weight unless applicant can show that such a step results in a materially different product from that suggested by the prior art. In addition, one skilled in the art would expect the combination suggested by Hughes, Hughes et al, and Rawson to function with a reasonable expectation of success since the references together disclose all of the claimed elements used in the same way to achieve the same result.

Concerning claim 3, Hughes discloses a binder that is hydrophobic (e.g., UHMWPE see the second full paragraph of column 6).

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Regarding claims 4 and 5, Hughes discloses a binder having the recited melt indexes (e.g., UHMWPE see the second full paragraph of column 6).

Regarding claim 7, Hughes discloses a container 100 (see FIG. 1) having a source water reservoir W and a filtered water reservoir W', a cartridge 10 (see FIG. 5) in communication with both the source and filter water reservoirs.

As to claim 21, Hughes et al disclose an embodiment capable of functioning as claimed (see paragraph 58).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes in view of Krause et al (US 3,522,187).

Hughes fails to specify zirconia hydroxide. For examination purposes, it has been assumed that hydrous zirconium oxide (HZO) is the same as zirconia hydroxide. Krause et al disclose that HZO can be used as a cation exchanger in low acidity or basic solutions (see Table 2 in column 7). Krause et al suggest that such a material can rapidly and selectively recover ions from aqueous solutions (see the second full paragraph of col. 2). It would have been obvious to have modified the filter of Hughes so as to have included HZO as specified by Krause et al in order to provide a cation exchanger capable of rapidly and selectively removing positively charged ions, including lead, from water.

Applicant's arguments filed 9-28-11 have been fully considered but they are not persuasive.

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Applicant argues that Hughes et al fail disclose compression at a pressure less than 100 psi, however, Hughes et al disclose compression at atmospheric pressure which reads on the claimed pressure range. Applicant's argument that Hughes et al fail to specify 5-20% compression is noted, however, it is held that such a modification, for example, vibrating the mixture at a given intensity and duration of time to achieve a 5-20% degree of compression, would have been obvious in order to fully remove the air pockets and voids between the particles and to ensure the formation of a filter block having a uniform density. In addition, such limitations relate to a method of making the filter and carry no patentable weight unless applicant can show that such process steps result in filter block with a materially different structure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew O. Savage whose telephone number is (571) 272-1146. The examiner can normally be reached on Monday-Friday, 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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**Appx40447**



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/Matthew O Savage/  
Primary Examiner  
Art Unit 1797

mos



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/927,372	10/29/2007	Elizabeth Louise Knipmeyer	482.120A	5919

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THE CLOROX COMPANY		
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EXAMINER	
SAVAGE, MATTHEW O	

ART UNIT	PAPER NUMBER
1778	

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03/06/2012	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

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Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b><i>Applicant-Initiated Interview Summary</i></b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	11/927,372	KNIPMEYER ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	MATTHEW SAVAGE	1778	

All participants (applicant, applicant's representative, PTO personnel):

(1) MATTHEW SAVAGE. (3) \_\_\_\_\_.

(2) STACY COMBS. (4) \_\_\_\_\_.

Date of Interview: 29 February 2012.

Type: ☒ Telephonic ☐ Video Conference  
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.  
If Yes, brief description: \_\_\_\_\_.

Issues Discussed ☐ 101 ☒ 112 ☐ 102 ☐ 103 ☐ Others  
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1.

Identification of prior art discussed: Art of record.

**Substance of Interview**  
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

The examiner suggested including the limitations discussed on pages 2-3 of the office action into claim 1 (e.g., 40-50 wt.% 80X325 activated carbon particles, 40 wt.% UHMWPE binder (GUR 2122 binder), 10-15 wt% lead scavenger having a particle size of 25-70 micron (see table IX, formulations PA 1-1, PA 1-2, PA 2-1, PA 2-2, PA 2-3, PT 2-1, and PT 2-3), the example including a density and thickness as implied by the volume, surface area, and weight of the carbon blocks (see paragraph 158 and table VII)) as opposed to the limitation relating to compression in order to overcome the rejections under 35 U.S.C. 112.

**Applicant recordation instructions:** The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

**Examiner recordation instructions:** Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/Matthew O Savage/  
Primary Examiner, Art Unit 1778

### Summary of Record of Interview Requirements

#### Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

#### Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

#### 37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,  
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

#### Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

BRITALP-0005438

CX-0917.0213

Appx40451

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application:	Art Unit: 1797
Inventor(s): KNIPMEYER, Elizabeth, ET AL.	Examiner: Savage, Matthew O.
Appln. No.: 11/927,372	Confirmation No.: 5919
Filing Date: October 29, 2007	
Title: Gravity Flow Carbon Block Filter	

Via Electronic Transmission  
Date March 12, 2012

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**RESPONSE TO NON-FINAL OFFICE ACTION with a  
5-month extension fee**

Dear Sir:

In response to the Non-Final Office Action mailed **October 19, 2011** in the above-captioned application, please enter the following amendments and remarks.

This response is filed with a two month extension fee.

**Amendments to the Claims** are reflected in the listing of claims which begins on Page **2** of this paper.

**Amendments to the Specification** are reflected on Page **4** of this paper.

**Remarks/Arguments** begin on Page **5** of this paper.

In re Knipmeyer et al.  
Appl. No. 11/927,372  
Docket No. 482.120A

**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application:

1. (CURRENTLY AMENDED) A gravity-fed carbon block water filter,  
comprising:  
about ~~20-90%~~ 30-50% activated carbon particles having a mesh size of about 80 x 325;  
about ~~20-45%~~ 35-40% ultra high molecular weight polyethylene binder material interspersed with the activated carbon particles; and  
about ~~5-40%~~ 10-30% lead scavenger, having a particle size of about 18-70 micron, and coupled to at least one of the activated carbon particles and binder material, the lead scavenger being for removing lead from water;  
wherein a lead concentration in a final liter of effluent water filtered by the carbon block is less than about 10 µg/liter after about 151 liters (40 gallons) of source water filtration, the source water having a pH of 8.5 and containing 135-165 parts per billion total lead with 30-60 parts per billion thereof being colloidal lead greater than 0.1 µm in diameter,  
wherein the water has an average flow rate of at least 0.1 liter per minute through the filter with a head pressure of between approximately 0.1 and 1.0 psi;  
wherein the binder, the carbon particles and the lead scavenger are mixed to form a substantially homogeneous blend;  
~~wherein the blend is compressed about 5-20% and at a pressure less than about 100psi.~~  
wherein the block has a wall thickness of about 0.25 in. to 0.75 in.; and  
wherein the density of the block is about 0.30 g/cm<sup>3</sup> - 0.52 g/cm<sup>3</sup>.
2. (ORIGINAL) The water filter as recited in claim 1, wherein the lead scavenger is a zirconia hydroxide.
3. (ORIGINAL) The water filter as recited in claim 1, wherein the binder material is hydrophobic.

In re Knipmeyer et al.  
Appl. No. 11/927,372  
Docket No. 482.120A

4. (ORIGINAL) The water filter as recited in claim 1, wherein the binder material has a melt index that is less than 1.8 g/10 min as determined by ASTM D 1238 at 190°C and 15 kg load.
5. (ORIGINAL) The water filter as recited in claim 1, wherein the binder material has a melt index that is less than 1.0 g/10 min as determined by ASTM D 1238 at 190°C and 15 kg load.
6. (CANCELLED)
7. (ORIGINAL) A gravity-flow system for filtering water, comprising:
  - a container having a source water reservoir than can hold source water and a filtered water reservoir that can hold filtered water;
  - a cartridge in communication with both the source water reservoir and the filtered water reservoir, the cartridge providing a path through which water can flow from the source water reservoir to the filtered water reservoir; and
  - a carbon block filter as recited in claim 1 disposed within the cartridge.
- 8.– 19 (CANCELLED)
20. (PREVIOUSLY PRESENTED) A gravity-flow system for filtering water, comprising:
  - a container having a source water reservoir than can hold source water and a filtered water reservoir that can hold filtered water;
  - a cartridge in communication with both the source water reservoir and the filtered water reservoir, the cartridge providing a path through which water can flow from the source water reservoir to the filtered water reservoir; and
  - a carbon block filter as recited in claim ~~13~~ 1 disposed within the cartridge.
21. (CANCELLED)

In re Knipmeyer et al.  
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**Amendment to the Specification:**

Replace original paragraph [00158] with the following:

[00158] The cup-shaped blocks in this example each have a volume of  $105 \text{ cm}^3$  with an internal surface area of  $60.6 \text{ cm}^2$  (surface area in contact with unfiltered water available for water flow, does not include top surface). The mass of the cup-shaped blocks tested ranged from 35 g for the fiber blocks to 43.5 g for the powder blocks.



In re Knipmeyer et al.  
Appl. No. 11/927,372  
Docket No. 482.120A

## REMARKS/ARGUMENTS

### A. Interview with Examiner

Applicant thanks the Examiner for the courteous telephonic interview on February 29, 2012 with Applicants' representative, Stacy Combs. Clarification for the basis of the 112 rejections was discussed. The Examiner suggested limitations based on Table VII examples PA1-1, PA1-2, PA2-1, PA2-2, PA2-3, PT2-1 and PT 2-3. Applicant asks the Examiner to consider examples PA3-2 and PA3-3, either in combination with the aforementioned examples *or alone*.

### B. Status of the Claims

#### *The Pending Claims*

Claims 1-5, 7, and 20 are pending in the application. Claim 1 is amended. Claims 6, 8-19 were previously cancelled. Claim 21 is cancelled herewith.

#### *Amendments to the Claims*

Claim 1 has been amended to recite that the carbon particles are about 80x325 mesh and comprise about 30-50% of the block. The amendment is supported, for example, in [0073], [0077] and Table VII. The Examiner proposed the claim be limited to about 40-50% carbon as presented in the examples of Table VII. Such a limitation could easily be designed around and would not provide Applicant adequate patent protection for its invention. Applicant should be granted the exclusive right to the thing patented and the public should not be able to make substantial copies. Applicants' examples provide a guide on how to make the invention. As such, other embodiments can be made without difficulty and their performance characteristics predicated by looking to known scientific laws. The specification explicitly provides support for the range of about 30-50%. Applicant respectfully requests the Examiner to consider the range of about 30-50% carbon.

Claim 1 has been amended to recite about 35-40% ultra high molecular weight polyethylene binder. The amendment is supported, for example, in [0083], [0085] and

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Table VII. The Examiner proposed the claim be limited to 40% binder as presented in the examples of Table VII. Applicant respectfully requests the Examiner to consider the range of about 35-40% binder for the reasons discussed above.

Claim 1 has been amended to recite 10-30% lead scavenger having a particle size of about 18-70 micron. The amendment is supported, for example, in [0089], [0090] and Table VII. The Examiner proposed the claim be limited to a size of about 25-70 micron as presented in the examples using Alusil™ and ATS™ of Table VII. Applicant explicitly provides that the lead sorbent may also be Isolux™ 302M available from MEI. See [0090]. Accordingly, the size of Isolux is about 18-36 micron. Applicant respectfully requests the Examiner to consider the range of about 18-70 micron for the reasons discussed above.

Claim 1 has been amended to recite that the block has a wall thickness of about 0.25 in. to 0.75 in. The amendment is supported, for example, in [0093].

Claim 1 has been amended to recite that the density of the block is about 0.32g/cm<sup>3</sup> to 0.51g/cm<sup>3</sup>. The density is based on the fill weight range reported in Table VII (ie., 38-44g) and the volume of the filter in a range of about 85-125cm<sup>3</sup>. The amendment is supported by Table VII, [00123], [00158]. The Examiner proposed the volume of the filter be limited to about 105cm<sup>3</sup> as presented in [0158]. Applicant respectfully requests the Examiner to consider the range of about 85-125cm<sup>3</sup> for the reasons discussed above.

Claim one is amended to remove the limitation describing compression and pressure.

No new matter has been added by these amendments.

### **C. Rejections under 35 USC 112, first paragraph**

Claims 1-5, 7, 20 and 21 are rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement. Claim 21 has been cancelled and Claim 1 has been amended. Applicant believes the amendments have overcome the rejection. However, should an issue remain, Applicant invites the Examiner to call the undersigned.

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In view of the amendments and comments submitted herewith, Applicants respectfully request the rejection be withdrawn.

**D. Rejections under 35 USC 112, first paragraph**

Claims 1-5, 7, 20 and 21 are rejected under 35 USC 112, first paragraph, because the specification while being enabling for formulations PA1-1, PA1-2, PA2-1, PA2-2, PA2-3, PT2-1 and PT 2-3 in Table VII, does not reasonably provide enablement for all possible formulations recited in Claims 1-5. Applicant asks the Examiner to consider examples PA3-2 and PA3-3, either in combination with the aforementioned examples or alone.

Claim 21 has been cancelled and Claim 1 has been amended.

Applicant believes the amendments have overcome the rejection. However, should an issue remain, Applicant invites the Examiner to call the undersigned. In view of the amendments and comments submitted herewith, Applicants respectfully request the rejection be withdrawn.

**E. Rejections under 35 USC 112, second paragraph**

Claims 1-5, 7, 20 and 21 are rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 21 has been cancelled and Claim 1 has been amended. Applicant believes the amendments have overcome the rejection. However, should an issue remain, Applicant invites the Examiner to call the undersigned.

In view of the amendments and comments submitted herewith, Applicants respectfully request the rejection be withdrawn.

**F. Claim Rejections Under 35 U.S.C. § 103(a)**

Claims 1, 3-5, 7 and 21 are rejected under 35 USC 103(a) as obvious over Hughes US6,524,477 in view of Hughes et al US2004/0168972 and Rawson et al US2008/0023406. Applicants respectfully submit the following arguments and that the newly amended claims are patentable in view of the cited art. Claim 21 has been cancelled.

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The mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art. *KSR International Co. v. Teleflex Inc.*, 550 U.S. \_\_\_, \_\_\_, 82 USPQ2d 1385, 1396 (2007); MPEP 2143.01(III).

In order to establish a *prima facie* case of obviousness, the Examiner must demonstrate that 1) the references teach all the claimed elements; 2) there is a suggestion or motivation in the prior art to modify or combine the reference teachings; and 3) there is a reasonable expectation of success. MPEP § 2143; In re Vaeck 20 USPQ2d 1438 (Fed. Cir. 1991).

Hughes describes a range of 50-80% polymer with a preferred teaching of 70% polymer to 30% carbon. The pending claims require 35-40% binder, which is well below the % described by Hughes. The pending claims also require removal of colloidal lead. The filter of Hughes is mostly comprised on binder and concerned with removal of microorganisms and doesn't describe the problem of colloidal lead. Hughes is silent regarding the density of the block. Hughes et al. nor Rawson cure the deficiencies. Hughes et al is teaching a method using vibration to make a carbon block comprised of carbon and a unique base polymeric filter matrix, such as PMX CF-1. Rawson et al. describes a granular filter, not a carbon block. Accordingly, the references do not teach all of the claimed elements. There is no suggestion or motivation to modify or combine the references and no reasonable expectation of success.

In view of the amendments and comments submitted herewith, Applicants respectfully request the rejection be withdrawn.

#### **D. Claim Rejections Under 35 U.S.C. § 103(a)**

Claims 2 is rejected under 35 USC 103(a) as being unpatentable over Hughes in view of Krause et al US3522187.

In view of the amendments and comments submitted above regarding independent claim 1, Applicant believes that it has overcome the rejection of the independent claims, thus no response is required in view of the rejected dependant claims 2.

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**CONCLUSION**

In view of the foregoing amendments and remarks, Applicants submit that the application is in condition for allowance. If, however, some issue remains which the Examiner feels may be addressed by Examiner's amendment, the Examiner is cordially invited to call the undersigned for authorization.

Please charge any additional fees, including fees for additional extensions of time, or credit overpayment to Deposit Account No. 03 2270.

Respectfully submitted,

Dated: March 12, 2012

By: /Stacy H. Combs/  
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/927,372	10/29/2007	Elizabeth Louise Knipmeyer	482.120A	5919

27019	7590	04/16/2012
THE CLOROX COMPANY		
P.O. BOX 24305		
OAKLAND, CA 94623-1305		

EXAMINER	
SAVAGE, MATTHEW O	

ART UNIT	PAPER NUMBER
1778	

NOTIFICATION DATE	DELIVERY MODE
04/16/2012	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patapps@clorox.com  
 denise.whigham@clorox.com  
 leslie.jennings@clorox.com

<b>Office Action Summary</b>	<b>Application No.</b> 11/927,372	<b>Applicant(s)</b> KNIPMEYER ET AL.	
	<b>Examiner</b> MATTHEW SAVAGE	<b>Art Unit</b> 1778	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on 12 March 2012.

2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.

3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

5) ☒ Claim(s) 1-5, 7 and 20 is/are pending in the application.

5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.

6) ☐ Claim(s) \_\_\_\_ is/are allowed.

7) ☒ Claim(s) 1-5, 7, and 20 is/are rejected.

8) ☐ Claim(s) \_\_\_\_ is/are objected to.

9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

10) ☐ The specification is objected to by the Examiner.

11) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) <input type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5) <input type="checkbox"/> Notice of Informal Patent Application 6) <input type="checkbox"/> Other: _____.
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The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5, 7, and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With respect to claim 1, the original specification fails to provide basis for an embodiment of a carbon block filter including a lead scavenger having a particle size of 18-70 micron, the block having a wall thickness of 0.25-.75 in, and the block having a density of .3-.52 g/cm<sup>3</sup>.

Claims 1-5, 7, and 20 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for formulations PA 1-1, PA 1-2, PA 2-1, PA 2-2, PA 2-3, PT 2-1, and PT 2-3 given in table IX, does not reasonably provide enablement for all of the possible formulations recited in claims 1-5. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. Applicant should note that only example 7B given in the specification includes the claimed lead removal and flow rate characteristics, the composition being limited to 40-50 wt. %



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80X325 activated carbon particles, 40 wt.% UHMWPE binder (e.g., GUR 2122 binder, see paragraph 161), 10-15 wt% lead scavenger having a particle size of 25-70 micron (see table IX, formulations PA 1-1, PA 1-2, PA 2-1, PA 2-2, PA 2-3, PT 2-1, and PT 2-3), the example including a density and thickness as implied by the volume, surface area, and weight of the carbon blocks (see paragraph 158 and table VII). Applicant should note that filter samples PA3-2 and PA3-3 given in example 7 will not function as recited in instant claim 1 (see Tables VII and VIII).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-5, 7, and 20 are rejected under 35 U.S.C. 103(a) as obvious over Hughes et al (US 2004/0168972) in view of Hughes (US 6,524,477) and Rawson et al (US 2008/0023406).

With respect to claim 1, Hughes et al disclose a gravity fed carbon block water filter (see paragraphs 56-58) including 65% activated carbon particles having a size of about 80X325 mesh (see paragraph 56), 35% of ultra high molecular weight polyethylene interspersed with the activated carbon particles (see paragraphs 26 and 56), the binder and carbon particles being mixed to form a substantially homogeneous blend (see paragraph 40), the carbon block having the recited flow rate characteristics (see paragraph 58). Hughes et al fail to specify a lead scavenger. Hughes discloses an

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CX-0917.0231

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analogous gravity flow filter block and teaches that 20 wt.% lead scavenger can be included in place of activated carbon particles, the lead scavenger having a particle size of about 18-70 micron since it is the same lead scavenger as disclosed in paragraph 160 of the instant specification (e.g., Englehard ATS). Hughes teaches that the addition of the lead scavenger enables the removal of lead. It would have been obvious to have modified the filter of Hughes et al so as to have included 20 wt.% of a lead scavenger as suggested by Hughes in order to enable the removal of lead. Hughes et al and Hughes fail to specify removing soluble and insoluble colloidal lead at a pH of 8.5 as claimed. Rawson et al disclose a filter that includes a lead sorbent for removing soluble lead and a lead sorbent for removing insoluble colloidal lead for treating water having a pH of 8.5 and teaches that such a combination enables the removal of both soluble and insoluble forms of lead from drinking water. It would have been obvious to have modified the combination of Hughes and Hughes et al so as to have included the required amounts of a sorbent for removing soluble lead and a sorbent for removing insoluble lead in order to enable the removal of both soluble and insoluble lead from water at a pH of 8.5 as recited in claim 1. Hughes et al fail to specify the recited wall thickness. Hughes et al and Hughes teach that the wall thickness can be adjusted to provide the desired flow rate at a particular head pressure (see paragraph 56 of Hughes et al and the third full paragraph of col. 11 of Hughes). In addition, Hughes teaches a wall thickness of .25 inch (see line 43 of col. 11). It would have been obvious to have modified the combination of Hughes et al, Hughes, and Rawson so as to have included a wall thickness of .25-.75 inch in order to provide the required flow rate at a particular

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**CX-0917.0232**

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head pressure. Hughes et al, Hughes, and Rawson fail to specify a density of the carbon block filter, however, the combination suggested by Hughes et al, Hughes, and Rawson obviously includes a density of about  $.3-.52 \text{ g/cm}^3$  since it includes the same composition as recited in the instant claim. In addition, one skilled in the art would expect the combination suggested by Hughes, Hughes et al, and Rawson to function with a reasonable expectation of success since the references together disclose all of the claimed elements used in the same way to achieve the same result.

Concerning claim 3, Hughes et al disclose a binder that is hydrophobic (e.g., UHMWPE, see paragraph 26).

Regarding claims 4 and 5, Hughes et al disclose a binder having the recited melt indexes (e.g., UHMWPE, see paragraph 26).

Regarding claim 7, Hughes discloses a container 100 (see FIG. 1) having a source water reservoir W and a filtered water reservoir W', a cartridge 10 (see FIG. 5) in communication with both the source and filter water reservoirs.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes et al in view of Hughes and Rawson et al as applied to claim 1 above, in view of Krause et al (US 3,522,187).

Hughes et al, Hughes, and Rawson fail to specify zirconia hydroxide. For examination purposes, it has been assumed that hydrous zirconium oxide (HZO) is the same as zirconia hydroxide. Krause et al disclose that HZO can be used as a cation exchanger in low acidity or basic solutions (see Table 2 in column 7). Krause et al

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suggest that such a material can rapidly and selectively recover ions from aqueous solutions (see the second full paragraph of col. 2). It would have been obvious to have modified the filter of Hughes so as to have included HZO as specified by Krause et al in order to provide a cation exchanger capable of rapidly and selectively removing positively charged ions, including lead, from water.

Applicant's arguments filed 3-12-12 have been fully considered but they are not persuasive.

Applicant argues that the limitation of the carbon particles having a size of about 80X325 mesh and a weight percentage of 30-50 wt.% of the block has basis in table VII, however, the table only provides basis for a weight percentage of 40-50 wt. % carbon particles having a size of 80X325 mesh.

Applicant argues that the recited weight percentage of 35-40 ultra high molecular weight polyethylene has basis in paragraphs 83 and 85 and table VII, however, paragraphs 83 and 85 do not specify the flow rate recited in instant claim 1 and table VII only provides basis for a weight percentage of 40 wt.% binder.

Applicant argues that the recited weight percentage of 10-30% of lead scavenger added to claim 1 has basis in paragraphs 89, 90, and table VII, however, paragraphs 89 and 90 do not specify the flow rate recited in claim 1 and table VII only provides basis for 10-15 wt.% lead scavenger in the case of the examples meeting the flow rate and lead removal criteria recited in claim 1. Applicant argues that the particle size range for the lead scavenger should be expanded to include the range of 18-36 microns to

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include the Isolux lead scavenger, however, it is held that the particle size range should be limited to 25-70 micron as specified paragraph 160 since the argued 18-36 micron range of the Isolux lead scavenger has no basis in the original specification.

Accordingly, the 18-70 micron range is considered new matter.

Applicant argues that the wall thickness of .25-.75 inch of the filter block has basis in paragraph 93, however, paragraph 93 is limited to the species shown in FIGS. 2-3 and does not apply to the species shown in FIGS. 15A-15D corresponding to the result recited in claim 1. Accordingly, the range of .25-.75 is considered new matter. Applicant should note that no definite wall thickness range is disclosed for the claimed species shown in FIGS. 15A-15D.

Applicant argues that the density range recited in claim 1 is based on the fill weight range of 38-44 g reported in table VII, however, the weight of the 80X325 activated carbon particles given in table VII is limited to 44g. Accordingly, the recited density range is considered new matter.

Applicant argues that the filter volume range is 85-125 cm<sup>3</sup>, however, the volume is limited to 105 cm<sup>3</sup> value given paragraph 158 in the case of example 7B which is being currently claimed.

Applicant arguments directed to the obviousness rejection based on Hughes in view of Hughes et al and Rawson are moot in view of the new grounds of rejection listed above.

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Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew O. Savage whose telephone number is (571) 272-1146. The examiner can normally be reached on Monday-Friday, 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

BRITALP-0005461  
CX-0917.0236

**Appx40474**

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew O Savage/  
Primary Examiner  
Art Unit 1797

mos

<b>Notice of Abandonment</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	11/927,372	KNIPMEYER ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	MATTHEW SAVAGE	1778

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

This application is abandoned in view of:

- ☒ Applicant's failure to timely file a proper reply to the Office letter mailed on 16 April 2012.
  - ☐ A reply was received on \_\_\_\_\_ (with a Certificate of Mailing or Transmission dated \_\_\_\_\_), which is after the expiration of the period for reply (including a total extension of time of \_\_\_\_\_ month(s)) which expired on \_\_\_\_\_.
  - ☐ A proposed reply was received on \_\_\_\_\_, but it does not constitute a proper reply under 37 CFR 1.113 (a) to the final rejection. (A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114).
  - ☐ A reply was received on \_\_\_\_\_ but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 7 below).
  - ☒ No reply has been received.
- ☐ Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
  - ☐ The issue fee and publication fee, if applicable, was received on \_\_\_\_\_ (with a Certificate of Mailing or Transmission dated \_\_\_\_\_), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
  - ☐ The submitted fee of \$\_\_\_\_\_ is insufficient. A balance of \$\_\_\_\_\_ is due.  
The issue fee required by 37 CFR 1.18 is \$\_\_\_\_\_. The publication fee, if required by 37 CFR 1.18(d), is \$\_\_\_\_\_.
  - ☐ The issue fee and publication fee, if applicable, has not been received.
- ☐ Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
  - ☐ Proposed corrected drawings were received on \_\_\_\_\_ (with a Certificate of Mailing or Transmission dated \_\_\_\_\_), which is after the expiration of the period for reply.
  - ☐ No corrected drawings have been received.
- ☐ The letter of express abandonment which is signed by the attorney or agent of record, the assignee of the entire interest, or all of the applicants.
- ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34(a)) upon the filing of a continuing application.
- ☐ The decision by the Board of Patent Appeals and Interference rendered on \_\_\_\_\_ and because the period for seeking court review of the decision has expired and there are no allowed claims.
- ☐ The reason(s) below:

	/Matthew O Savage/ Primary Examiner Art Unit: 1778
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Petitions to revive under 37 CFR 1.137(a) or (b), or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.



PATENT APPLICATION  
DOCKET NO. 4228  
CONFIRMATION NO.: 3341

**IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE**

INVENTOR(S): Reid and Saaski  
SERIAL NO.: 11/858,765  
FILED: September 20, 2007  
SUBJECT: FILTERS WITH IMPROVED MEDIA UTILIZATION AND METHODS  
OF MAKING AND USING SAME

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

RESPONSE TO EXAMINER'S ACTION MAILED OCTOBER 18, 2010

Please enter the following amendments and remarks of record.

AMENDMENTS

In the Drawings:

Please amend Figures A, C and E, as shown in the attached Annotated Sheets and Replacement Sheets.

In the Description and the Claims:

Please make the amendments to the Description, in paragraph [0070] on page 20 of the application as filed, that begin on page 2 of this document, and the amendments to the Claims that begin on page 3 of this document.

[0070] Figures 8 A – E portray one, but not the only, embodiment of a filter block 800 that includes a brace 822 or partition dividing or extending into the indentation space. Filter block 800 is similar to filter block 10, in Figures 1A – M, except that the brace 810 extends between and connects the two sub-blocks in a portion of the indentation space. As seen to best advantage in Figure 8C, this brace 810 does extend substantially all the way along the length of the sub-blocks, but there is still an indentation on each side of the brace 810 that separates/spaced the sub-blocks. Thus, it may be said that there are two indentations 821, 822 extending into the filter block 800 (from the bottom and the side of the filter block) along a substantial amount of the length of the sub-blocks. One may see in Figures 8A – E, and to best advantage in Figure 8C, that each of the two indentations 821, 822 extends into the filter block, between the sub-blocks, from a bottom end of the filter block (at 831, 832, respectively) and also from the entire lower half of an outer side of the filter block (at 841, 842, respectively). Thus, lower halves 851, 852 of the two indentations extend into the bottom and into opposite sides of the lower half of the filter, and upper halves 861, 862 of the two indentations extend up into the filter block between the two side connection strips 871, 872 (that form closed outer sides of the upper half of the filter block) and the axially-extending brace 810. Brace 810 may be seen to be at the longitudinal axis of the filter. Thus, one may describe the lower halves of the two indentations as being open at their bottom and outer sides, and the upper halves of the two indentations as being closed at their sides, by the material of side connection strips 871, 872 and the axial brace 810. Thus, one may see from Figures 8A – E that the two sub-blocks of the filter are connected only by a transverse connection strip 880 of filter media at the top of the filter, and by said right and left side connection strips 871, 872 of filter media that extend only half way down said axial length of the filter, and by the axial brace 810. The reinforcement of the brace 810 helps prevent the filter block sub-blocks from snapping off or otherwise being damaged, and, because of the presence of the two indentations, said brace 810 preferably does not significantly reduce fluid access to the surfaces of the indentation. The brace 810 is preferably thin and tapered, to minimize its impact (reduction) on the indentation surface area.

## CLAIMS

1. (Cancelled)
2. (Cancelled)
3. (Cancelled)
4. (Cancelled)
5. (Cancelled)
6. (Cancelled)
7. (Cancelled)
8. (Cancelled)
9. (Cancelled)
10. (Cancelled)
11. (Cancelled)
12. (Cancelled)
13. (Cancelled)
14. (Cancelled)
15. (Cancelled)
16. (Cancelled)

17. (Currently Amended) A porous filter block comprising only two connected sub-blocks of filter media, each sub-block having a single cavity extending into the sub-block and a plurality of cavities in the filter block and forming internal surfaces for being in fluid communication with a fluid inlet or a fluid outlet of a filter cartridge, and the filter block comprising an external surface comprising only two indentations at least one indentation extending into the filter block to be between said two sub-blocks at least two of said cavities, so that fluid flowing in an inside-out flow scheme, into said cavities and through the filter block, exits the filter block at the external surface including at said two indentations at least one indentation, and so that fluid flowing in an outside-in flow scheme, into the filter block through the external surface including the two indentations, exits the filter block through said single cavity of each of said two sub-blocks;

wherein the filter block external surface is a tapered generally cylinder, the filter block has an axial length, and the filter block has a radial dimension transverse to the axial length, the filter block has only two cavities, and each of the two cavities extends axially into the filter block and is D-shaped in transverse cross-section; and

wherein said two sub-blocks are connected only at the top ends of the sub-blocks by a transverse connection strip of filter media, at the upper half of opposite outer sides of the sub-blocks by side connections strips of filter media that extend only half way down said axial length of the filter at the external surface of the filter block, and along the longitudinal axis of the filter by an elongated brace of filter media that extends substantially all the way along the length of the sub-blocks; and

wherein each of said two indentations extends into the filter block, between the sub-blocks, from a bottom end of the filter block and also from the entire lower half of said opposite outer sides, and the two indentations extend up between the elongated brace and said side connection strips, to near the top end of the filter, so that with the upper half of the indentations do not open to the external surface.

18. (Cancelled)

19. (Currently Amended) A filter block as in Claim 17 ~~comprising two sub-blocks, with one of said two cavities extending axially into each of the two sub-blocks,~~ wherein said two sub-blocks are integrally formed into the filter block by molding the filter block.

20. (Cancelled)

21. (Cancelled)

22. (Cancelled)

23. (Currently Amended) A filter block as Claim 17, wherein the external surface of the filter block comprises outer axial wall or walls of the filter block that are tapered so that the block has an overall smaller diameter at the bottom of the filter block compared to the top of the filter block, wherein the internal surfaces formed by said two cavities are tapered so that each cavity has an overall smaller diameter at the bottom of the cavity compared to the top of the cavity, and wherein ~~the filter block further comprises an elongated brace extending between the two D-shaped sub-blocks in a portion of said at least one indentation space,~~ the elongated brace ~~being~~ is axially tapered so that a bottom end of the elongated brace is narrower than a top end of the elongated brace.

24. (Cancelled)

25. (Cancelled)

26. (Previously Presented) A filter block as in claim 17, wherein the two cavities are open at a top end of the filter block and closed or capped at a bottom end of said filter block.

27. (Currently Amended) A filter block as in Claim 17, comprising 28 – 52 wt% activated carbon, 18 – 22 wt% lead removal media, and 30 – 50 wt% binder.

28. (Cancelled)

29. (Cancelled)

30. (Cancelled)

31. (Cancelled)

32. (Currently Amended) A porous filter block as in Claim ~~[[1]]~~27 comprising less than 50 wt% binder ~~made only of activated carbon granules, lead removal media, and one or more binders,~~ wherein said activated carbon granules have a size distribution equal to D10 of 10 – 30 microns, D50 of 70 - 100 microns, and D90 of 170 – 200 microns, and wherein said ~~one or more binder~~[[s]] has~~[[ve]]~~ a melt index of less than or equal to 0.1 g/min melt index by ASTM D1238 or DIN 53735 at 190 degrees C. and 15 kilograms, and wherein said filter block removes lead from water to a level less than 10 ppb total of soluble and particulate lead.

~~33~~[[4]]. (Currently Amended) A porous filter block comprising ~~multiple~~ only two sub-blocks each comprising porous filter media walls surrounding and defining a single cavity for receiving fluid, and each of said two sub-blocks being connected to ~~at least~~ one other of said sub-blocks by filter media of which the filter block is made, the filter block having an internal surface defined by said cavities of the sub-blocks that are reachable by inlet fluid to be filtered, and the filter block having a~~[[n]]~~ tapered cylindrical external surface comprising ~~at least one~~ two indentations into the filter block between said sub-blocks, wherein fluid directed to the internal surface flows through said filter media walls to exit the filter block at said external surface including at said ~~at least one~~ two indentations;

wherein the filter block is characterized by:

having only two of said sub-blocks, wherein each of said two sub-blocks having an axial length and a radial dimension perpendicular to said axial length;

wherein each of said two sub-blocks has an outer surface that is D-shaped in radial cross-section, and wherein the internal surface formed by the cavity of each of said two said sub-blocks is D-shaped in radial cross-section;

wherein the two sub-blocks are connected together by filter media at their top ends, by filter media extending only halfway down along the length of the filter block at the outer surfaces of the sub-blocks, and by an elongated, axially-extending brace at the longitudinal axis of the filter block;

wherein lower halves of said two indentations extend into the filter block from the bottom end of the filter block and from opposite sides of the lower half of the filter block, and upper halves of the two indentations extend up into the filter block between the closed outer sides of the upper half of the filter block and the axially-extending brace;

~~wherein said at least one indentation extends axially between said two D-shaped sub-blocks, and the filter block further comprises an elongated, axially extending brace between the two D-shaped sub-blocks and between said two indentations in a portion of said indentation space; and~~

wherein said outer surface of each of the two sub-blocks is tapered to be smaller at a bottom end than at a top end of each sub-block, said elongated brace is tapered to be smaller at its bottom end than at its top end, and said internal surface formed by each cavity is tapered so that each cavity has an overall smaller diameter at the bottom of the cavity compared to the top of the cavity; and

wherein the filter block is made of materials selected from the group consisting of activated carbon powder, activated carbon granules, lead removal additive, arsenic removal additive, and at least one binder, and wherein said at least one binder has a melt index of less than or equal to 0.1 g/min melt index by ASTM D1238 or DIN 53735 at 190 degrees C and 15 kilograms.

34[[5]]. (Currently Amended) A porous filter block as in Claim 33[[4]] wherein the inlet fluid is water, and wherein the filter block is adapted to remove lead from said water to a level less than 10 ppb total of soluble and particulate lead by means of said water flowing through said porous filter media walls under gravity-flow.

35[[6]]. (Currently Amended) A porous filter block as in Claim 34 made only of said at least one binder, activated carbon, and lead removal media, 30 – 50 wt-% binder, 28 – 52 wt-% activated carbon, and 18 – 22 wt-% lead removal media, wherein the total of said binder, activated carbon, and lead removal media is 100 wt-% of the filter block, wherein said activated carbon has a size distribution equal to D10 of 10 – 30 microns, D50 of 70 - 100 microns, and D90 of 170 – 200 microns.

36[[7]]. (Currently Amended) A filter block as in Claim 35[[6]] that is made of less than 50 wt% binder ~~30 – 50 wt-% binder, 28 – 52 wt-% activated carbon, and 18 – 22 wt-% lead removal media, wherein the total of said binder, activated carbon, and lead removal media is 100 wt-% of the filter block.~~

37[[8]]. (Currently Amended) A filter block as in Claim 36[[7]] wherein said binder is selected from the group consisting of: thermoplastic binder, thermo-set binder, polyolefins, polyethylene, polyvinyl halides, polyvinyl esters, polyvinyl ethers, polyvinyl sulfates, polyvinyl phosphates, polyvinyl amines, polyamides, polyimides, polyoxidiazoles, polytriazols, polycarbodiimides, polysulfones, polycarbonates, polyethers, polyarylene oxides, polyesters, polyarylates, phenol-formaldehyde resins, melamine-formaldehyde resins, formaldehydeureas, ethyl-vinyl acetate copolymers, co-polymers and block interpolymers thereof, and derivatives and combinations thereof.

38. (New) A porous filter block as in Claim 27 comprising less than 50 wt% binder.

REMARKS

Applicants request reconsideration and further examination of this application.

In response to the Examiner's restriction requirement, Applicants have amended independent Claim 17, dependent Claims 19, 23, 27, and 32, independent Claim 33 (that was originally mis-numbered as 34), and dependent Claims 35 (originally 36), and 36 (originally 37). Claims 20 and 28 – 31 have been cancelled as they are directed to unelected embodiments. Applicants have added new Claim 38, which is dependent upon Claim 27. All the remaining claims and the new claim are consistent with Applicants' earlier election.

Regarding the rejection of Claim 17 under 35 U.S.C. 103(a) and Claim 33 (previously 34) under 35 U.S.C. 102(b), Applicants have amended independent Claims 17 and 33 to more specifically claim the invention. Specifically, Claim 17 now recites that:

the porous filter block comprises only two connected sub-blocks of filter media, each sub-block having a single cavity extending into the sub-block, and the filter block comprises an external surface comprising only two indentations extending into the filter block between said two sub-blocks . . .

the filter block external surface is a tapered cylinder, and that each of the two cavities extends axially into the filter block and is D-shaped in transverse cross-section . . .

said two sub-blocks are connected only at the top ends of the sub-blocks by a transverse connection strip of filter media, at the upper half of opposite outer sides of the sub-blocks by side connections strips of filter media that extend only half way down said axial length of the filter at the external surface of the filter block, and along the longitudinal axis of the filter by an elongated brace of filter media that extends substantially all the way along the length of the sub-blocks . . .

each of said two indentations extends into the filter block, between the sub-blocks, from a bottom end of the filter block and also from the entire lower half of said opposite outer sides, and the two indentations extend up between the elongated brace and said side connection strips, to near the top end of the filter, so that with the upper half of the indentations do not open to the external surface.



Specifically, Claim 33 has been amended to recite that:

porous filter block comprises only two sub-blocks each comprising porous filter media walls surrounding and defining a single cavity for receiving fluid, and each of said two sub-blocks being connected to one other of said sub-blocks by filter media of which the filter block is made . . . and that the filter block has a tapered cylindrical external surface comprising two indentations into the filter block between said sub-blocks. . .

wherein the filter block is characterized by:

each of said two sub-blocks having an axial length and a radial dimension perpendicular to said axial length;

wherein each of said two sub-blocks has an outer surface that is D-shaped in radial cross-section, and wherein the internal surface formed by the cavity of each of said two said sub-blocks is D-shaped in radial cross-section;

wherein the two sub-blocks are connected together by filter media at their top ends, by filter media extending only halfway down along the length of the filter block at the outer surfaces of the sub-blocks, and by an elongated, axially-extending brace at the longitudinal axis of the filter block;

wherein lower halves of said two indentations extend into the filter block from the bottom end of the filter block and from opposite sides of the lower half of the filter block, and upper halves of the two indentations extend up into the filter block between the closed outer sides of the upper half of the filter block and the axially-extending brace. . .

Applicants contend that the invention as now claimed in Claim 17 and in Claim 33 is novel and unobvious in view of the cited prior art. Neither the Woodruff document, nor the Hughes document, discloses or suggests the claimed structure.

The Woodruff filter block is rectangular, and has what may be described as having two sub-blocks (upper half and lower half of the view of Figure 11), each of the two sub-blocks having two cavities -- see right and left portions of 43, on each side of the partition (46), and see right and left portions of 44, on each side of the partition (47). Also, the Woodruff filter has two indentations (see right and left portions of 41, on each side of the partition (45), but the two indentations between the Woodruff sub-blocks extend only up from the bottom and not from/through opposite side surfaces of the filter block. There are no indentations or openings at the side surfaces of the Woodruff filter and especially no indentations/openings along the entire lower half of the side

surfaces of the filter (see the closed right and left sides/ends of Fig. 13). The sub-blocks of Woodruff are closed all along their outer sides. Also, the Woodruff sub-blocks are connected all along the length of their outer side surfaces (see Fig. 13 again), as opposed to Applicants' claimed connection only half way down the outer side surfaces. Further, as stated by the Examiner, Woodruff does not disclose any D-shaped cavities; Woodruff only discloses very narrow slit cavities and very narrow slit indentations.

Regarding the other document, Hughes, which is combined with Woodruff for rejections under 103(a), Applicant believes that Hughes alone or in combination with Woodruff does not disclose or suggest Applicants' claimed invention. Hughes discloses a polymer-media cup, filled with granular media, wherein, at most, one may say the cup has a single cavity and no indentations. There is no teaching in Hughes of any D-shaped cavities and no teaching of two sub-blocks of filter media. There is no teaching of a block with open sides in the lower half of the filter and no teaching of sub-blocks that are connected only at a top strip, at side strips that extend only half way down the filter, and at an axial brace. Only in hindsight after seeing Applicants' invention would one try to combine Woodruff and Hughes and then further modify it to try to arrive at the claimed invention.

Therefore, no combination of Woodruff and Hughes would result in the claimed combinations and structures; there would need to be major modifications, not suggested anywhere in the two references and not making sense given the shapes of the very different prior art filters, to arrive at Applicants' claimed structure.

Regarding amended Claims 27, 32 and 36, Applicants note that neither of the cited references, alone or in combination, suggests the claimed invention. Claim 32 depends upon Claim 27 (wherein the binder is claimed as 30 – 50 wt%), and further limits the range of binder to less than 50 wt%. This is supported in the description because the range of 30 – 50 wt% is clearly discussed and a specific example cites 40 wt% binder, which is in the range of 30 – 50 wt% but is less than 50 wt%.

On the other hand, Woodruff mentions wide ranges of percentage of carbon and binder but teaches that 35 – 45 wt-% carbon and 55 – 65 wt-% binder are desired. Also, Hughes mentions that a binder percentage as low as 50 percent in the polymer-media cup is possible, but Hughes is quite persistent in explaining that higher binder percentages are desirable, specifically 70 percent binder and 30 percent carbon plus additives. Thus, the two references each teach away from the binder range claimed in claim 27, and especially teach away from binder content of less than 50

percent.

Regarding Claims 32 and 35, Applicants' carbon size range and distribution is not taught by either Woodruff or Hughes. Woodruff says his carbon is sized at 5 – 150 microns (therefore, none that is greater-than-or-equal-to 170 microns), which Hughes teaches 44 – 170 microns (therefore, none or very little greater-than-or-equal-to 170 microns, and certainly not 10 percent greater-than-or-equal-to 170 microns). Thus, Woodruff and Hughes carbon particles do not equate to, or suggest, Applicants' 50 percent point of 70 – 100 microns and 90 percent point of 170 – 200 microns. The large-size end of the carbon size distribution in Applicants' Claim 32 and 35 is clearly significantly different than Woodruff and Hughes.

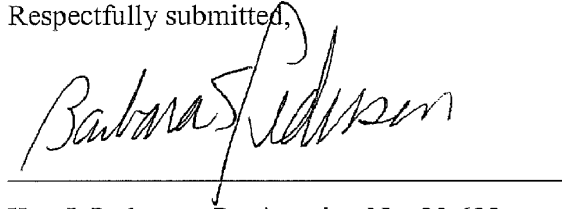
The art of making an effective gravity flow, porous filter block, with excellent flowrates and excellent contaminant and lead removal is a difficult task, wherein small differences in many variables can make large differences in molding, durability and performance, as discussed in paragraphs [0013] – [0016], [0023] and [0024] of the application. By structuring the invented filter block in the claimed manner, specifically with two D-shaped cavities and with two indentations from the bottom and sides of the filter block on each side of an axial brace, Applicants are able to achieve very uniform filter wall thickness and very uniform flow distribution through the walls – see the uniform wall thicknesses in Figures 8A – E and in the similar filter (without brace) in Figures 1A – 1N. Further, with the claimed compositions, binder percentages, and carbon particle sizes, Applicants' have invented a porous filter block that may be molded in a single unit, is strong, and yet performs over long periods before lead breakthrough, with even flow distribution and desirably-high flow rates under gravity. See performance data in paragraph [0076] of the application as filed, which reports obtaining lead removal results that meet recent NSF Standard 53 for drinking water, that is, less than 10 ppb total soluble and particulate lead, while also achieving flow of 1 liter per 4 – 7 minutes from a filter block of about 2 inches in diameter and 3 inches long. Applicants contend that their specifically-claimed invention is novel and unobvious in view of the cited art, and is not simply “a matter of choice” as stated by the Examiner. Applicants contend that the solution to the long-felt, but-unmet-need for such a filter and filter performance in a gravity flow environment has been met with the unobvious combination of structure and features of the claimed invention.

Applicants have amended the Description to include language as amended into the claims, for literal support and call-out numbers. The drawings have been amended to include call-out numbers to point to structure of interest. These amendments are well-supported in the Description

and Drawings as originally filed, so no new matter has been added.

Applicants now believe the application is in condition for allowance and respectfully request the same.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Barbara S. Pedersen", written over a horizontal line.

Date: 4/18/11

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/858,765	09/20/2007	ROGER P. REID	4228	3341

27727	7590	06/13/2011
PEDERSEN & COMPANY, PLLC		
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EXAMINER	
SAVAGE, MATTHEW O	

ART UNIT	PAPER NUMBER
1778	

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 11/858,765	<b>Applicant(s)</b> REID ET AL.	
	<b>Examiner</b> MATTHEW SAVAGE	<b>Art Unit</b> 1778	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on 18 April 2011.

2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) 17,19,23,26,27 and 32-38 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

6) ☒ Claim(s) 17,19,23,26,27 and 32-38 is/are rejected.

7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 18 April 2011 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) <input type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5) <input type="checkbox"/> Notice of Informal Patent Application 6) <input type="checkbox"/> Other: _____.
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U.S. Patent and Trademark Office  
PTOL-326 (Rev. 08-06)

Office Action Summary

Part of Paper No./Mail Date 20110608

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Appx41089

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The amendment filed 4-18-11 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the concept of the right and left side connection strips extending only half way down the axial length of the filter is considered new matter.

Applicant is required to cancel the new matter in the reply to this Office Action.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 17, 19, 23, 26, 27, and 32-38 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The concept of the side connection strips extending only half way down the axial length of the filter media as recited in claim 17 lacks basis in the original specification and is considered new matter.

The concept of the filter media extending only half way down along the length of the filter block at the outer surfaces of the sub-blocks as recited in claim 33 lacks basis in the original specification and is considered new matter.

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Applicant should note that the drawings cannot be relied upon to provide basis for the aforementioned limitations since the drawings were not originally indicated as being drawn to scale.

The concept of including less than 30 wt% binder "less than 50 wt% binder" as implied by claims 32, 36, and 38 is considered new matter.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 32 and 36-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Further limiting a narrow range of "30-50 wt% binder" as recited in claims 27 and 35 with a broader range of "less than 50 wt% binder" as recited in dependent claims 36 and 38 is considered vague and indefinite since it is unclear as to whether or not the lower end point of the range is being observed.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 17, 19, 23, 26, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woodruff (EP 345,381).

With respect to claim 17, Woodruff discloses a porous filter block including only two connected sub-blocks of filter media (see FIGS. 9-14), each sub-block having a cavity 43, 44 forming internal surfaces capable of being in fluid communication with a fluid inlet or a fluid outlet of a filter cartridge, and the filter block including an external surface including an indentation 41 (see FIG. 14) extending into the filter block between the two of cavities, so that fluid flowing in an inside-out flow scheme, into said cavities and through the filter block, can exit the filter block at the external surface including at the indentation, and so that fluid flowing in an outside-in flow scheme, into the filter block through the external surface including the indentation, can exit the filter block through the cavity in each sub-block; wherein the filter block external surface is tapered block, has an axial length, and has a lateral dimension transverse to the axial length, and each of the two cavities extends axially into the filter block and is rectangular-shaped in transverse cross-section, the two sub-blocks being connected at the top ends by a transverse common strip of filter media (see FIG. 11 and 16, the filter being inverted in FIG. 16), at the upper half of opposite outer sides of the sub-blocks by side connection strips (see FIGS. 9, 11, and 12, and along the longitudinal axis by an elongated brace that extends substantially all the way along the length of the sub-blocks (see FIG. 14), each of the two indentations extending into the filter block, between the sub-blocks, from a bottom end of the filter block (see FIG. 14), and the two indentations extend up between the elongated brace and the side connection strips to near the top

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end of the filter so that the upper half of the indentations do not open to the external surface (see FIG. 14). Woodruff fails to specify the filter block as being cylindrical and each of the two cavities as being D-shaped in transverse cross-section, however, selection of such shapes is considered a matter of choice of which a person of ordinary skill in the art would have found obvious absent persuasive evidence such a configuration was significant (see *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966)). Woodruff fails to specify each sub-block as including only a single cavity, however, removing the reinforcing walls 46 and 47 from the cavity of each sub-block to produce single cavities in each sub-block would have been obvious in the case that the reinforcing function associated with the walls was not needed or desired. See M.P.E.P. 2144.04 II A. Woodruff fails to specify the side connection strips of filter media as extending only half way down the axial length of the filter, however, elimination of half of each side connection strip would have been obvious in the case that the reinforcing function associated with half of each side connection strip was not needed or desired. See M.P.E.P. 2144.04 II A.

Regarding claim 19, Woodruff discloses the sub blocks as being integrally formed into the filter block by molding the filter block.

Concerning claim 23, Woodruff discloses the external surface of the filter block as including outer axial wall or walls of the filter block that tapered so that the block has an overall smaller diameter at the bottom of the filter block compared to the top of the filter block (see FIG. 16, the block being inverted in the Figure), the internal surfaces formed by the cavities 43, 44 being tapered so that each cavity has an overall smaller

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diameter at the bottom of the cavity compared to the top of the cavity, and the elongated brace being axially tapered so that a bottom end of the elongated brace as being narrower than a top end of the elongated brace (see FIG. 14, the block being inverted in the Figure).

As to claim 26, Woodruff discloses the two multiple cavities 43, 44 as being open at a top end of the filter block and closed or capped at a bottom end of the filter block (see FIG. 16, the block being inverted in the Figure).

With respect to claim 33, Woodruff discloses a porous filter block including only two sub-blocks each comprising porous filter media walls surrounding and defining a cavity 43 or 44 (see FIGS. 9-16) for receiving fluid, and each of the sub-blocks being connected to one other of said sub-blocks by filter media of which the filter block is made, the filter block having an internal surface defined by the cavities of the sub-blocks that are reachable by inlet fluid to be filtered, and the filter block having a tapered block shaped external surface including two indentations into the filter block between said sub-blocks (see FIG. 14), wherein fluid directed to the internal surface can flow through the filter media walls to exit the filter block at the external surface including the two indentations; each of the two sub-blocks having an axial length and a lateral dimension perpendicular to its axial length; wherein each of the two sub-blocks has an outer surface that is rectangular-shaped in radial cross-section, and wherein the internal surface formed by the cavity of each of the two sub-blocks is rectangular-shaped in lateral cross-section; the two sub-blocks being connected together by filter media at their top ends (see FIG. 11), by filter media extending down along the length of the filter

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media at the outer surfaces of the sub-blocks (see FIGS. 9, 11 and 12), and by an axially extending brace at the longitudinal axis of the filter block (see FIG. 14); the lower halves of the two indentations extending into the filter block from the bottom end of the filter block (see FIG. 14, the filter being inverted), and upper halves of the two indentations extending up into the filter block between the closed outer sides of the upper half of the filter block and the axially extending brace (see FIG. 14), and wherein the outer surface of each of the two sub-blocks is tapered to be smaller at a bottom end than at a top end of each sub-block (see FIG. 16, the filter being inverted in the Figure), the elongated brace is tapered to be smaller at its bottom end than at its top end (see FIG. 14), and the internal surface formed by each cavity is tapered so that each cavity has an overall smaller diameter at the bottom of the cavity compared to the top of the cavity (see FIG. 16); and wherein the filter block is made of materials selected from the group consisting of activated carbon powder (see lines 58-59 of col. 3) and at least one binder has a melt index of less than or equal to 0.1 g/min melt index by ASTM D1238 or DIN 53735 at 190 degrees C and 15 kilograms (e.g., ultra high molecular weight polyethylene or GUR 212 (see line 38-39 and 52 of page 3). Woodruff fails to specify the filter block as being cylindrical and each of the two cavities as being D-shaped in transverse cross-section, however, selection of such shapes is considered a matter of choice of which a person of ordinary skill in the art would have found obvious absent persuasive evidence such a configuration was significant (see *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966)). Woodruff fails to specify each sub-block as including only a single cavity, however, removing the reinforcing walls 46 and 47 from the cavity

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of each sub-block the to produce single cavities in each sub-block would have been obvious in the case that the reinforcing function associated with the walls was not needed or desired. See M.P.E.P. 2144.04 II A. Woodruff fails to specify the filter media connecting together the sub blocks as extending only halfway down along the length of the filter block at the outer surfaces of the sub blocks, however, elimination of half of each portion of the connecting filter media would have been obvious in the case that the reinforcing function associated with half of the connecting filter media was not needed or desired. See M.P.E.P. 2144.04 II A.

Claims 27, 32, and 34-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woodruff as applied to claim 17 or 33 above, and further in view of Hughes (US 6,524,477).

With respect to claim 27, Woodruff discloses 30-65 wt% activated carbon which overlaps with the claimed range of 28-52 wt% activated carbon and 35-70% binder which overlaps with the claimed range of 30-50 wt% binder (see lines 10-16 of page 4). Woodruff teaches that additional materials can be added to the filter media (see lines 44-47 of page 4). Woodruff fails to specify 18-22 wt% lead removal media. Hughes discloses an analogous filter 60 (see FIG. 5) that can include 20 wt% lead removal media (see line 11 of col. 8) which overlaps with applicant's claimed range. Hughes teaches that inclusion of such a media provides for the removal of lead as well as other heavy metals from drinking water (see lines 3-8 of col. 8). It would have been obvious to have modified the filter of Woodruff so as to have included lead removal media as

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suggested by Hughes in order to provide a means for removing lead as well as other heavy metals from the water.

With respect to claim 32, Woodruff discloses 35-70% binder which is included the claimed range of less than 50 wt% binder, the activated carbon having a particle size distribution of D10 and D50 (e.g., as covered by the range of 5-150 microns on line 58 of page 3) and a binder having the recited melt index (e.g., ultra high molecular weight polyethylene or GUR-212 (see lines 38, 39, and 52 of page 3). Woodruff fails to mention D90 activated carbon particles and lead removal media. Hughes discloses an analogous filter 60 (see FIG. 5) that includes lead removal media (see lines 3-8 of col. 8) and D90 activated carbon particles (e.g., the 80 mesh particles mentioned on lines 16-25 of col. 8). Hughes teaches that inclusion of such lead removal media provides for the removal of lead as well as other heavy metals from drinking water (see lines 3-8 of col. 8). Hughes also suggests that the larger sized 80 mesh carbon particles provide a lower pressure drop (see lines 21-25 of col. 8). It would have been obvious to have modified the filter of Woodruff so as to have included lead removal media and D90 carbon media as suggested by Hughes in order to provide a means for removing lead as well as other heavy metals from the water and to provide a filter that minimized a pressure drop there-across. In addition, the filter suggested by Woodruff and Hughes is capable of removing lead as recited in the claim since it includes the same structure to the extent recited in the claim.

With respect to claim 34, Woodruff fails to specify lead removal media. Hughes discloses an analogous filter 60 (see FIG. 5) that includes lead removal media and

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teaches that inclusion of such a media provides for the removal of lead as well as other heavy metals from drinking water (see lines 3-8 of col. 8). It would have been obvious to have modified the filter of Woodruff so as to have included lead removal media as suggested by Hughes in order to provide a means for removing lead as well as other heavy metals from the water. In addition, the filter suggested by Woodruff and Hughes is capable of removing lead as recited in the claim since it includes the same structure to the extent recited in the claim.

With respect to claim 35, Woodruff discloses 30-65 wt% activated carbon which overlaps with the claimed range of 28-52 wt% activated carbon and 35-70% binder which overlaps with the claimed range of 30-50 wt% binder (see lines 10-16 of page 4), the activated carbon having a particle size distribution of D10 and D50 (e.g., as covered by the range of 5-150 microns on line 58 of page 3) and a binder having the recited melt index (e.g., ultra high molecular weight polyethylene or GUR-212 (see lines 38, 39, and 52 of page 3). Hughes fails to mention D90 activated carbon particles and 18-22 wt% lead removal media. Hughes discloses an analogous filter 60 (see FIG. 5) that includes 20 wt% lead removal media which overlaps with the claimed range (see lines 3-8 of col. 8) and D90 activated carbon particles (e.g., the 80 mesh particles mentioned on lines 16-25 of col. 8). Hughes teaches that inclusion of such lead removal media provides for the removal of lead as well as other heavy metals from drinking water (see lines 3-8 of col. 8). Hughes also suggests that the larger sized 80 mesh carbon particles provide a lower pressure drop (see lines 21-25 of col. 8). It would have been obvious to have modified the filter of Woodruff so as to have included lead removal media and D90

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carbon media as suggested by Hughes in order to provide a means for removing lead as well as other heavy metals from the water and to provide a filter that minimized a pressure drop there-across. In addition, the filter suggested by Woodruff and Hughes is capable of removing lead as recited in the claim since it includes the same structure to the extent recited in the claim.

With respect to claim 36, Woodruff discloses 35-70% binder which is included the claimed range of less than 50 wt% binder

As to claim 37, Woodruff discloses polyethylene (see line 38 of page 3).

With respect to claim 38, Woodruff discloses 35-70% binder which is included the claimed range of less than 50 wt% binder.

Applicant's arguments filed on 4-18-11 have been fully considered but they are not persuasive.

Applicant's argument that Woodruff fails to specify indentations that extend from the sides of the block is noted, however, such a modification is considered obvious in the case that the reinforcing function of the associated portion of filtration media was not needed or desired as explained in the rejection of claims 17 and 33 listed above.

Applicant argues that Woodruff fails to teach the range of binder being less than 50 wt%, however, Woodruff discloses a range of binder of 35-70% which overlaps with the claimed range.

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Applicant argues that the Woodruff and Hughes fail to specify activated carbon having the recited particle size ranges, however, the references together disclose particulate activated carbon having a particle sizes that fall within the claimed ranges and therefor cover the claim.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew O. Savage whose telephone number is (571) 272-1146. The examiner can normally be reached on Monday-Friday, 7:00am-3:30pm.

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**Appx41100**

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew O Savage/  
Primary Examiner  
Art Unit 1776

mos

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PATENT APPLICATION  
DOCKET NO. 4228  
CONFIRMATION NO.: 3341

**IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE**

INVENTOR(S): Reid and Saaski  
SERIAL NO.: 11/858,765  
FILED: September 20, 2007  
SUBJECT: FILTERS WITH IMPROVED MEDIA UTILIZATION AND METHODS  
OF MAKING AND USING SAME

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

**RESPONSE TO EXAMINER'S ACTION MAILED JUNE 13, 2011  
WITH REQUEST FOR CONTINUED EXAMINATION FILED HERewith**

Please enter the following amendments and remarks of record.

AMENDMENTS

In the Description and the Claims:

Please make the amendments to the Description, in paragraph [0070] on page 20 of the application as filed, that begin on page 2 of this document, and the amendments to the Claims that begin on page 3 of this document.

[0070] Figures 8 A – E portray one, but not the only, embodiment of a filter block 800 that includes a brace 822 or partition dividing or extending into the indentation space. Filter block 800 is similar to filter block 10, in Figures 1A – M, except that the brace 810 extends between and connects the two sub-blocks in a portion of the indentation space. As seen to best advantage in Figure 8C, this brace 810 does extend substantially all the way along the length of the sub-blocks, but there is still an indentation on each side of the brace 810 that separates/spaced the sub-blocks. Thus, it may be said that there are two indentations 821, 822 extending into the filter block 800 (from the bottom and the side of the filter block) along a substantial amount of the length of the sub-blocks. One may see in Figures 8A – E, and to best advantage in Figure 8C, that each of the two indentations 821, 822 extends into the filter block, between the sub-blocks, from a bottom end of the filter block (at 831, 832, respectively) and also from the ~~entire lower half of an~~ outer side of the filter block (at 841, 842, respectively). Thus, lower portions halves 851, 852 of the two indentations extend into the bottom end and into opposite lower outer sides of the ~~lower half of the~~ filter block, and upper portions halves 861, 862 of the two indentations extend up into the filter block between the two side connections strips 871, 872 (that form closed, opposite upper outer sides of the ~~upper half~~ of the filter block) and the axially-extending brace 810. Brace 810 may be seen to be at the longitudinal axis of the filter. Thus, one may describe the lower portions halves of the two indentations as being open at their bottom and outer sides, and the upper portions halves of the two indentations as being closed at their sides, by the material of side connection strips 871, 872 and the axial brace 810. Thus, one may see from Figures 8A – E that the two sub-blocks of the filter are connected only by a transverse connection strip 880 of filter media at the top of the filter, and by said right and left side connection strips 871, 872 of filter media that extend only half part- way down said axial length of the filter, and by the axial brace 810. The reinforcement of the brace 810 helps prevent the filter block sub-blocks from snapping off or otherwise being damaged, and, because of the presence of the two indentations, said brace 810 preferably does not significantly reduce fluid access to the surfaces of the indentation. The brace 810 is preferably thin and tapered, to minimize its impact (reduction) on the indentation surface area.

CLAIMS

1. (Cancelled)
2. (Cancelled)
3. (Cancelled)
4. (Cancelled)
5. (Cancelled)
6. (Cancelled)
7. (Cancelled)
8. (Cancelled)
9. (Cancelled)
10. (Cancelled)
11. (Cancelled)
12. (Cancelled)
13. (Cancelled)
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15. (Cancelled)
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17. (Cancelled)
18. (Cancelled)
19. (Cancelled)
20. (Cancelled)
21. (Cancelled)
22. (Cancelled)
23. (Cancelled)
24. (Cancelled)
25. (Cancelled)
26. (Cancelled)
27. (Cancelled)
28. (Cancelled)
29. (Cancelled)
30. (Cancelled)
31. (Cancelled)

32. (Cancelled)

33. (Currently Amended) A porous filter block comprising only two sub-blocks each comprising porous filter media walls surrounding and defining a single cavity for receiving fluid, and each of said two sub-blocks being connected to one other of said sub-blocks by filter media of which the filter block is made, the filter block having an internal surface defined by said cavities of the sub-blocks that are reachable by inlet fluid to be filtered, and the filter block having a tapered cylindrical external surface comprising two indentations into the filter block between said sub-blocks, wherein fluid directed to the internal surface flows through said filter media walls to exit the filter block at said external surface including at said two indentations;

wherein the filter block is characterized by:

each of said two sub-blocks having an axial length and a radial dimension perpendicular to said axial length;

wherein each of said two sub-blocks has an ~~outer~~ external surface that is D-shaped in radial cross-section, and wherein the internal surface formed by the cavity of each of said two said sub-blocks is D-shaped in radial cross-section;

wherein the two sub-blocks are connected together by filter media at their top ends, by filter media extending only ~~half part~~ way down along the length of the filter block at the opposing outer side surfaces of the filter block ~~sub-blocks~~, and by an elongated, axially-extending brace at the longitudinal axis of the filter block;

wherein lower ~~halves~~ portions of said two indentations extend into the filter block from the bottom end of the filter block and also from lower, opposite side surfaces of the lower half of the filter block, and upper portions ~~halves~~ of the two indentations extend up into the filter block between the closed outer sides of the ~~upper half~~ top end of the filter block and the axially-extending brace;

and wherein said external ~~outer~~ surface of each of the two sub-blocks is tapered to be smaller at a bottom end than at a top end of each sub-block, said elongated brace is tapered to be smaller at its bottom end than at its top end, and said internal surface formed by each cavity is tapered so that each cavity has an overall smaller diameter at the bottom of the cavity compared to the top of the cavity; and

wherein the filter block is made of a mixture of materials selected from the group consisting

~~of activated carbon powder, activated carbon granules, lead removal additive, arsenic removal additive, and at least one binder; only 30 – 50 wt-% binder, 28 – 52 wt-% activated carbon, and 18 – 22 wt-% lead removal media, wherein the total of said binder, activated carbon, and lead removal media is 100 wt-% of the filter block, wherein said activated carbon has a size distribution equal to D10 of 10 – 30 microns, D50 of 70 - 100 microns, and D90 of 170 – 200 microns and wherein said at least one binder has a melt index of less than or equal to 0.1 g/min melt index by ASTM D1238 or DIN 53735 at 190 degrees C and 15 kilograms; and~~

wherein the inlet fluid is water, and wherein the filter block is adapted to remove lead from said water to a level less than 10 ppb total of soluble and particulate lead by means of said water flowing through said porous filter media walls under gravity-flow.

34. (Cancelled)

35. (Cancelled)

36. (Cancelled)

37. (Currently Amended) A filter block as in Claim 33[[6]] wherein said binder is selected from the group consisting of: thermoplastic binder, thermo-set binder, polyolefins, polyethylene, polyvinyl halides, polyvinyl esters, polyvinyl ethers, polyvinyl sulfates, polyvinyl phosphates, polyvinyl amines, polyamides, polyimides, polyoxidiazoles, polytriazols, polycarbodiimides, polysulfones, polycarbonates, polyethers, polyarylene oxides, polyesters, polyarylates, phenol-formaldehyde resins, melamine-formaldehyde resins, formaldehydeureas, ethyl-vinyl acetate copolymers, co-polymers and block interpolymers thereof, and derivatives and combinations thereof.

38. (Cancelled)

## REMARKS

Applicants request reconsideration and further examination of this application.

In response to the new-matter objections to the amendment filed on April 18, 2011, Applicants have amended the Description and the Claims to remove the language that was the source of the objection. Specifically, Applicants have avoided use of the terms “half”, “halves” and “half way”. Applicants now use terminology including the filter media extending only “part-way” down (rather than “half way”) along the length of the filter block at outer side surfaces of the filter-block. Also, Applicants describe the two indentations as having lower “portions” and upper “portions” rather than lower and upper “halves”. Clearly, the modified terminology is supported in the application-as-filed, and is not new matter. For example, Figures 8A – D clearly show side connection strips that extend part-way down (not all the way down) the axial length of the filter block; clearly the two indentations are shown as extending into opposite, lower outer sides of the filter block; and clearly the two indentations have lower portions extending into the bottom end and opposite, lower outer side surfaces of the filter, and upper portions that extend up into the filter block between the closed, opposite upper outer sides of the filter block and the axially-extending brace.

Regarding the rejections in view of the cited art, Applicants have cancelled claims and have amended the remaining independent claim, Claim 33 (after the previously-done renumbering), to address the new matter rejections and to include the limitations of Claims 34 and 35. Applicants contend that a combination of Woodruff and Hughes does not arrive at the claimed invention, and that the differences are not merely a “matter of choice”, especially in view of the many variables and difficulty involved in designing a gravity-flow filter. Further, it is not obvious to combine Woodruff and Hughes, due to their very different structures and their different purposes. The Woodruff filter block is designed for water faucet installation (see Woodruff’s Background of the Invention and page 8, lines 15 – 20), and, hence, the Woodruff filter block structure and composition are designed for filtering water under significant pressure. The Hughes filter is for gravity-flow, but comprises structures and compositions very different from the Woodruff filter block and also very different from Applicants’ filter block. Applicants contend that it is not obvious to combine these two references, and it is not obvious or reasonable to gather “bits” of information from Hughes’ very different structures for combination with Woodruff, and then make



further modifications not suggested by either reference.

Further, as noted by the Examiner regarding Applicants' Claim 33, Woodruff does not teach a filter being cylindrical (and, Applicants argue, Woodruff does not teach two D-shaped sub-blocks), does not teach two D-shaped cavities, does not teach each sub-block having only one cavity, and does not teach filter media connecting the two sub-blocks only part-way down along the sides of the filter block so that the indentations extend into both the bottom end and lower opposing side surfaces of the filter block. Further, as noted by the Examiner, regarding the composition limitations moved from Claims 34 and 35 into Claim 33, Woodruff doesn't teach 18 – 22 wt-% lead removal media or the D90 of 170 – 200 microns of Applicants' claimed invention.

Further, Applicants contend that Hughes does not teach the elements of Applicants' amended Claim 33 that Woodruff doesn't teach, in any way that would suggest Applicants' Claim 33. Specifically regarding Applicants' composition of 30 – 50 wt-% binder, 28 – 52 wt-% activated carbon, and 18 – 22 wt-% lead removal media, and Applicants' micron size distribution, Hughes only mentions two “bits” of these features (a zeolite for lead-removal and an 80 mesh carbon size), but each is mentioned for a different structural element of Hughes' filter and not in a way that teaches toward a filter block as claimed by Applicant, as further discussed below.

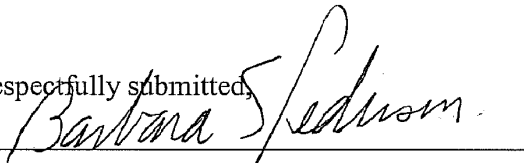
Hughes teaches a plastic cup, plus loose granular media placed inside the plastic cup, with a composition totaling 70 wt% polymer (the plastic cup) and 30 wt% carbon granules. Or, Hughes teaches that, if zeolite is added to remove lead, it is added to the plastic of the cup rather than to the loose granules, and the volume of loose carbon granules is reduced to maintain 70 wt% polymer and a total of 30 wt% zeolite-in-plastic plus loose carbon granules. Thus, Hughes teaches away from Applicants' invention by teaching that plastic is always maintained at a percentage of 70 wt%. Further, while Hughes mentions 80 mesh material for carbon granules, it is in the context of compensating for “very fine mesh” of the plastic cup 60; Applicants contend this does not reasonably combine with Woodruff's teachings to arrive at Applicants' claimed D10, D50, and D90 distribution for carbon in a solid-profile filter block.

Further, neither of the references makes obvious that a combination of Woodruff and Hughes plus further modifications, not in either reference, could achieve a gravity-flow filter block adapted to remove lead from said water to a level less than 10 ppb total of soluble and particulate lead by means of said water flowing through said porous filter media walls under gravity-flow. The art of making an effective gravity flow, porous filter block, with excellent flowrates and excellent contaminant and lead removal under gravity flow, is a very difficult task that is very

sensitive to shape and composition, but Applicants have achieved such a filter block with the claimed structure and composition. See performance data in paragraph [0076] of the application-as-filed. Therefore, Applicants contend that their specifically-claimed invention is novel and unobvious in view of the cited art, and is not simply “a matter of choice” starting from Woodruff’s closed-ended rectangular filter designed for faucet-pressurized filtration. Applicants contend that the solution to the long-felt, but-unmet-need for such a gravity-flow filter and filter performance has been met with the unobvious combination of structure, composition and features of the claimed invention.

Applicants now believe the application is in condition for allowance and respectfully request the same.

Respectfully submitted,



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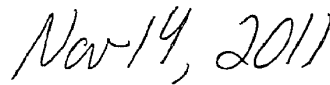
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**CERTIFICATE OF SERVICE**

I hereby certify that I electronically filed the foregoing with the Clerk of the Court by using the CM/ECF system on August 2, 2024.

I certify that on August 2, 2024 I served the confidential version of this appendix via email on counsel of record.

Dated: August 2, 2024

/s/ Deanne E. Maynard

Deanne E. Maynard